The cadastre of free-living ciliates and testate amoebae of Azerbaijan

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| Submitted September 6, 2017 | Accepted September 16, 2017 |

Summary

This monograph summarizes the most recent knowledge on species diversity and distribution of free-living ciliates and testate amoebae in natural waters and soils of Azerbaijan. The section on ciliates contains data on 757 species, with the indication of their distribution in 13 regions covering the entire territory of the country. The annotated species list includes the data on distribution of representatives of each ciliate family not only by region but also by the biotopes, including marine and freshwater as well as different soil habitats. The section on testate amoebae contains the data on 265 species, including biodiversity and occurrence of the species by regions and biotopes. This is the first comprehensive summary of the information about free-living ciliates and testate amoebae of Azerbaijan performed using the modern methods. This publication makes a substantial contribution to the existing knowledge of the overall biodiversity of the Caucasus Region.

Key words: free-living ciliates, testate amoebae, Azerbaijan
Dedicated to the Founder of the Azerbaijani protozoology
Academician M.A. Musayev
History of research of free-living ciliates and testate amoebae in Azerbaijan

The World of Protozoa, mostly heterotrophic unicellular eukaryotic organisms, is huge: it comprises tens of thousands species of diverse morphologies inhabiting practically all regions of the globe. Their role in the biological processes on the Earth is enormous, and their importance is comparable to that of the autotrophs.

Out of nearly 200,000 morphological species of all protists known to date, ca. 40,000 species are inhabitants of the seas and oceans. According to the latest data, more than a half of the Earth’s oxygen is produced by the World Ocean due to functioning of the unicellular autotrophic planktonic protists. Therefore, the notion “Woods are the lungs of the Earth” should be rather changed to: “Plankton are the lungs of the Earth”.

In fresh waters and soils, the role of free-living heterotrophic protists (Protozoa) is likewise important: they actively participate in the processes of production and decomposition of organic matter. For example, being bacteriophages, most ciliates and testate amoebae consume large amounts of bacteria, including pathogens, thereby contributing to biological purification of the environment. Soil Protozoa actively participate in the processes of increasing soil fertility. According to modern estimates, biomass of soil protozoans is quite comparable to biomass of multicellular pedobionts.

Information on free-living Protozoa of Azerbaijan in the publications of the early authors is very scarce (Grimm, 1876, 1877; Veysig, 1930, 1931, 1939, 1940; Alizade, 1934, 1938, 1939, 1941, 1942). The main literature source is the Doctoral Dissertation of S.Ya. Veysig (1940) entitled “Materials on the microscopic hydrofauna of the Caucasus and its zoogeographical analysis”. Further on, the monograph by A. Kasymov, the Corresponding Member of the Azerbaijan National Academy of Sciences, entitled “Hydrofauna of the Lower Kura and the Mingechaurian Reservoir”, published in 1965, and also his second monograph, “The Freshwater Fauna of the Caucasus” (Kasymov, 1972) summarized the state-of-the-arts of this topic, with few additions to the already known data.

Analyzing the data of the early authors, we can conclude that only 53 species of ciliates and 49 species of amoebae (both “bare” and testate) from marine and fresh waters of Azerbaijan were known until the modern research period started.

The start of the modern period of studying free-living Protozoa in Azerbaijan was laid by F. Agamaliev’s works on ciliates of the Caspian Sea, which began in the middle of the 1960s. His long-term research broadened our knowledge of free-living ciliates of the Caspian Sea. Earlier, according to O. Grimm and S. Veysig, only a few ciliate species were known, while Agamaliev’s monograph “Ciliates of the Caspian Sea: Systematics, ecology, zoogeography” (1983) contained a list of 439 species, of which 20 species and 1 genus were described for the first time.

In the 1960s, the first studies of soil protists were started in the Protistology Laboratory at the Institute of Zoology, Azerbaijan National Academy of Sciences (Amiraslanova, 1967), and in the 1980s some additional complex studies on protistan pedobionts from several taxonomic groups (flagellates, amoebae, ciliates) were carried out. The soil protists of citrus plants plantations in Lankaran (Ibadov, 1983) and in cultivated soils of Absheron (Mirza-zade, 1989) were investigated. It should be noted that those researches were rather of ecological than of faunistic nature, and thus they were carried out without using the relevant species identification methods that are obligatory for the precise taxonomic determinations.

The first special investigation of soil testate amoebae in Azerbaijan was fulfilled in the 1990s (Zaidov, 1995). The 93 species of testate amoeba were found in the forest soils of North-Western Azerbaijan, of which 39 species were first observed for the fauna of the Caucasus, and 66 species were first records for the fauna of Azerbaijan. Unfortunately, at present studies of the soil testate amoebae are not carried out in Azerbaijan.

In the 80s of the XX century, several integrated hydrobiological investigations of freshwater microbenthos were performed; during those studies, along with the other groups of aquatic organisms, free-living ciliates were investigated, and 15 ciliate species were described for the first time (Aliev, 1987a, 1987b, 1990a, 1990b, 1991).

However, special regular investigations targeted on freshwater ciliates of Azerbaijan started only in 1972 by I. Alekperov. Taxonomic results of these long-term works were summarized and published in 2005, in his monograph “Atlas of Free-Living Ciliates (classes Kinetofragminophora, Colpodea, Polyhymenophora)”, in which on the base of silver impregnation methods the illustrated descriptions of 251 species of ciliates, including 2 new families,
8 genera and 90 species were presented (Alekperov, 2005).

Of special importance for the knowledge of general biodiversity were the results of studies of free-living ciliates conducted in 1990 jointly with the colleagues from the Institute of Biology of the Kyrgyzstan Academy of Sciences, during the complex scientific expedition to Middle Asia. Three researchers – S. Dashdamirov, H. Aliyev and I. Alekperov from the Institute of Zoology, Azerbaijan National Academy of Sciences, participated in this joint research. During the 2 months-long expedition, several groups of animals, including free-living ciliates, were sampled from the inland waters of Uzbekistan, Tajikistan, Kyrgyzstan and partially Kazakhstan. The samples collected in the high-mountain fresh water reservoirs, as well as in the saline Issyk-Kul Lake were processed in Baku. Moreover, according to the agreement with the colleagues-protozoologists from the Institute of Oceanology, USSR Academy of Sciences, in the late 1980s the preserved samples of planktonic ciliates from different areas of the Chukchi and Bering seas, as well as soil samples from the Line Island (Polynesia) were delivered to the Protistology Laboratory at the Institute of Zoology, Azerbaijan National Academy of Sciences for processing. All those unique materials were processed successfully and the obtained results, including the description of one new ciliate family and more than 10 new species, were published (Alekperov, Mamaeva, 1992).

The complete summary of results of the 45 years of research on the ciliate species diversity in marine, freshwater and soil habitats in Azerbaijan and other regions of the globe, as well as the results of environmental research, including the use of certain ciliate species for bioassays at the cellular and population levels, were summarized in the monograph “Free-living ciliates of Azerbaijan (ecology, zoogeography, practical significance)” (Alekperov, 2012). Currently, according to our estimation, the species diversity of free-living ciliates in Azerbaijan accounts for 755 species, including 8 genera and 47 species were described for the first time (Snegovaya, Alekperov, 2005, 2009, 2010a, 2010b). The studies of this group are currently in progress (Snegovaya, Tahirowa, 2015).

Thus, the accumulated knowledge and vast, largely unpublished data on the biodiversity of these two groups of the free-living Protozoa in Azerbaijan required systematization and unification. Here we summarize all subsequent results of our own studies and also the reliable faunistic data from the published sources on the free-living ciliates from marine, freshwater and soil habitats, as well as freshwater and soil amoebae of Azerbaijan.

It goes without saying that this book is only the first attempt to sum up the results of studies of these two large groups of Protozoa in a certain geographic region, obtained (which is very important) by modern mandatory methods of taxonomic identification of species. The data on the species diversity of ciliates and testate amoebae presented in this monograph can be used for the adequate comparison of the faunas of Azerbaijan and the other regions of the world, where the studies were also carried out at the required methodological level, since only comparison of the data obtained by using the same methods gives the real picture of the protozoan zoogeography. Alternatively, we inevitably get stuck to the “cosmopolitanism theory” of the Protozoa. All issues mentioned above explain the actuality of this monograph which should contribute significantly to the knowledge of the overall biodiversity of Azerbaijan and the entire Caucasus Region.

The attached map (Fig. 1) shows the regions of Azerbaijan where the investigations of biodiversity of free-living ciliates and testate amoeba were carried out.

The free-living ciliates

Since 1972, totally 757 species of free-living ciliates have been found during our research in marine and fresh waters, as well as in soil habitats in different regions of Azerbaijan. The annotated species list indicating the occurrence of these Protozoa by regions and biotopes in different study areas is given in Table 1.

In the section devoted to free-living ciliates in this publication, we use mainly the taxonomy system of A.W. Jankowski (2007), set forth in the second volume of the monograph “Protists”.

The free-living ciliates
Table 1. Taxonomic composition and occurrence of free-living ciliates in different regions of Azerbaijan.

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1* | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Class Kariorelictea Corliss, 1974                           |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Trachelocercida Jank., 1978                          |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Trachelocercidae Kent, 1880                           |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 1 Trachelocerca incaudata Kahl, 1933                        | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 2 T. cylindricolis Lepsi, 1962                              | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 3 Kovalevaiia sulcata (Kovaleva, 1966)                      | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 4 K. teissieri (Dragesko, 1960)                             | +  | +  |   |   |   |   |   |   |   |    |    |    |    |
| 5 Trachelophis discolor Raikov, 1962                        | +  | +  |   |   |   |   |   |   |   |    |    |    |    |
| 6 T. coniforms Wright, 1982                                 | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 7 T. binucleata Dragesco, 1960                              | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 8 T. oligostriata (Raikov, 1962)                            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 9 T. nivea Wright, 1982                                     | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 10 T. gracilis Dragesco, 1960                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Loxodida Jankowski, 1980                             |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Kentrophoridae Jankowski, 1980                        |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 11 Kentrophorus canalis Wright, 1982                        | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 12 K. uninueatus Raikov, 1962                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 13 K. trichocistis (Dragesco, 1954)                         | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 14 K. faurei (Dragesco, 1954)                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 15 K. flavus Raikov et Kovaleva, 1968                       | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 16 K. latus Raikov, 1962                                    | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Loxodidae Butschli, 1889                             |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Loxodidae Butschli, 1889                              |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 17 Loxodes rostrum (Muller, 1773)                           | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 18 L. kahl Dragesco et Njine, 1971                          | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 19 L. rex Dragesco, 1970                                    |   | +  |   |   |   |   |   |   |   |    |    |    |    |
| 20 L. vorax Stokes, 1887                                    | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 21 L. penardi Dragesco, 1960                                | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 22 L. striatus (Engelmann, 1862)                            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Cryptopharyngidae Jankowski, 1980                     |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Cryptopharyngidae Jankowski, 1980                      |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 23 Cryptopharynx setigerus Kahl, 1928                       | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 24 C. multinucleatum Dragesco, 1960                         | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 25 Apocryptopharynx wardii (Small et Lynn, 1985)            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Protoheterotrichida Nouzarede, 1977                  |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Geleiidae Foissner, 1998 nec Kahl, 1933               |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 26 Gelea fossata (Kahl, 1933)                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 27 G. major (Dragesco, 1954)                                | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 28 G. simplex (Fauré-Fremiet, 1951)                         | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 29 G. nigricaps (Kahl, 1933)                                | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 30 G. luci (Dragesco, 1960)                                 | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 31 G. acuta (Dragesco, 1960)                                | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Aveliidae Dragesco, 1999                             |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Aveliidae Dragesco, 1999                              |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 32 Avelia gigas (Dragesco, 1954)                            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 33 A. arcachonense (Nouzarede, 1975)                        | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Order Heterotrichida Stein, 1859                           |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Blepharismidae Jank. in Small et Lynn, 1985           |    |   |   |   |   |   |   |   |   |    |    |    |    |
| 34 Angiasteina salinara (Florentin, 1899)                   | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| 35 Blepharisma hyalinum Perty, 1849                         | +  |   |   |   |   |   |   |   |   |    |    |    |    |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                            | 1  2  3  4  5  6  7  8  9  10 11 12 13 |
| 36. *B. dileptus* Kahl, 1928                                | +            |
| 37. *B. falcatum* Gelei, 1954                               | +            |
| 38. *B. tardum* Kahl, 1928                                  | + +          |
| 39. *B. vestitum* Kahl, 1928                                | + +          |
| 40. *B. coerulescens* Gajewskaja, 1933                      | + +          |
| 41. *B. dawsoni* Christie et Hirshfield, 1967               | +            |
| 42. *B. undulans* Stein, 1868                               | + +          |
|                                                            | Fam. Spirostomatidae Stein, 1867 |
| 43. *Spirostomum minus* Raux, 1901                          | + + + + + +  |
| 44. *S. ambiguum* (Müller, 1786)                            | + + + + + +  |
| 45. *S. loxodes* Stokes, 1885                               | + + + + + +  |
| 46. *S. teres* Claparede et Lachmann, 1859                  | + + + + + +  |
|                                                            | Fam. Climacostomidae Repak, 1972 |
| 47. *Climacostomum virens* (Ehrenberg, 1833)                | + + + + + +  |
| 48. *C. minimum* Faissner, 1980                             | + + + + + +  |
| 49. *Fabrea salina* Hennequy, 1890                         | +            |
|                                                            | Fam. Condylostomatidae Kahl in Doflein and Reichenow, 1927 |
| 50. *Condylostoma fieldi* Hartwig, 1973                     | + +          |
| 51. *C. granulosum* Bullington, 1940                        | + +          |
| 52. *C. psammophile* Bock, 1954                            | +            |
| 53. *C. reichii* Wilbert et Kohan, 1981                     | +            |
| 54. *C. subterraneum* Leps, 1962                            | +            |
| 55. *C. kasymovii* Alekperov, 1984                          | +            |
| 56. *C. arenarium* Spiegel, 1926                            | +            |
| 57. *C. magnum* Spiegel, 1926                               | + +          |
| 58. *C. spatiosum* Ozaki et Yagiu in Yagiu, 1944            | + + +        |
| 59. *Linostomatella vorticella* (Ehrenberg, 1833)            | + + + + + +  |
|                                                            | Fam. Stentoridae Carus, 1863 |
| 60. *Stentor amethystinus* Leidy, 1880                      | + +          |
| 61. *S. polymorphus* (Müller, 1773)                         | + +          |
| 62. *S. gracilis* Maskell, 1887                             | +            |
| 63. *S. roeselli* Ehrenberg, 1835                           | +            |
| 64. *S. mulleri* Ehrenberg, 1831                            | +            |
| 65. *S. vindis* Ghosh, 1921                                 | +            |
| 66. *S. globator* Stokes, 1885                              | +            |
| 67. *S. coerulescens* Ehrenberg, 1830                       | +            |
| 68. *S. gallinulus* Penard, 1922                            | +            |
|                                                            | Class Spirotrichea Butschli, 1889 |
|                                                            | Fam. Phacodiniidae Corliss, 1979 |
| 69. *Phacodinium muscorum* Prowazek, 1900                   | + +          |
|                                                            | Order Stichotrichida Fauré-Fremiet, 1961 |
|                                                            | Fam. Amphisiellidae Jankowski, 1979 |
| 70. *Amphiziella annulata* (Kahl, 1928)                     | +            |
| 71. *A. turanica* Alekperov et Asadullayeva, 1999           | +            |
| 72. *A. milnei* Kahl, 1932                                  | +            |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 73 A. quadrinucleata Berger et Foissner, 1989               | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 74 A. vitiphila (Foissner, 1987)                           | + | + |   |   | + |   |   |   |   |    |    |    |    |
| 75 A. marioni Wicklow, 1982                                | + | + |   |   | + |   |   |   |   |    |    |    |    |
| 76 Hemiamphisiella terricola Foissner, 1988                | + |   |   |   |   |   | + |   |   |    |    |    |    |
| 77 Paramphisiella acuta Foissner, 1994                     |   | + |   |   |   |   |   |   |   |    |    |    |    |
| 78 Paragastrostyla lanciola Hemberger, 1985                | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 79 Pseudouroleptus caudatus Hemberger, 1985                | + |   |   |   |   |   |   |   |   | + |    |    |    |
| 80 P. terrestris Hemberg, 1985                             | + |   |   |   |   |   |   |   |   | + |    |    |    |

Fam. Kahliellidae Tuffrau, 1979

|                                                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| 81 Kahliella acrobates Horvath, 1932                        | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 82 K. microstoma Alekperov, 1985                            | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 83 K. spirastoma Alekperov, 1988                            |   | + |   |   |   |   |   |   |   |    |    |    |    |
| 84 K. costata Kahl, 1932                                    |   | + |   |   |   |   |   |   |   |    |    |    |    |
| 85 K. bacilliformis (Gelei, 1954)                           |   | + |   |   |   |   |   |   |   |    |    |    |    |

Fam. Oxytrichidae Ehrenberg, 1838

|                                                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-----------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| 86 Tachysoma rigescens (Kahl, 1932)                        | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 87 T. ovata Song et Wilbert, 1997                          | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 88 Styloynchia bifaria (Stokes, 1887)                      | + | + | + |   |   | + |   |   |   |    |    |    |    |
| 89 S. vorax Stokes, 1885                                    | + |   |   |   |   | + |   |   |   |    |    |    |    |
| 90 S. quadrinucleata Alekperov et Musaev, 1988             |   | + |   |   |   |   | + |   |   |    |    |    |    |
| 91 S. putina Stokes, 1885                                   |   | + |   |   |   |   | + |   |   |    |    |    |    |
| 92 S. vorax Stokes, 1885                                    |   | + | + |   |   | + |   |   |   |    |    |    |    |
| 93 S. notophora Stokes, 1885                                |   | + | + |   |   | + |   |   |   |    |    |    |    |
| 94 Histiculus similis (Quennerstedt, 1867)                  | + |   |   |   |   |   | + |   |   |    |    |    |    |
| 95 H. complanatus (Stokes, 1887)                            |   | + |   |   |   |   | + |   |   |    |    |    |    |
| 96 H. vorax (Stokes, 1891)                                  | + |   |   |   |   | + |   |   |   |    |    |    |    |
| 97 H. steini (Sterki, 1878)                                 | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 98 Sterkiella tricirrata (Buitkamp, 1977)                   | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 99 Paraurostyla (Urostyla) wesei (Stein, 1859)              | + | + | + |   |   | + |   |   |   |    |    |    |    |
| 100 P. granulifera Berger et Foissner, 1989                 | + |   |   |   |   |   | + |   |   |    |    |    |    |
| 101 P. polynucleata Alekperov, 1993                         | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 102 Oxytricha fallax Stein, 1859                            | + | + |   |   |   |   | + |   |   |    |    |    |    |
| 103 O. balladina Song et Wilbert, 1989                      | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 104 O. himenostoma Stokes, 1887                             | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 105 O. marina Kahl, 1932                                    | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 106 Tachysoma (Oxytricha) pellionella (Müller, 1773)        |   | + |   |   |   | + |   |   |   |    |    |    |    |
| 107 O. setigera Stokes, 1891                                | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 108 O. aeruginosa Wrzesniovski, 1870                        | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 109 O. tenella Song et Wilbert, 1989                        | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 110 O. halophila Kahl, 1932                                  | + | + |   |   |   |   |   |   |   |    |    |    |    |
| 111 O. ovalis Kahl, 1932                                    | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 112 O. discofera Kahl, 1932                                 | + |   |   |   |   |   |   |   |   |    |    |    |    |
| 113 O. longa Gelei et Szabados, 1950                        | + |   |   |   |   |   |   |   |   |    |    |    |    |
### Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| O. gibba (Müller, 1786)                                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Wallaskia schiffmanni Foissner, 1976                          | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| Gonostomum gonostomoida (Hemberger, 1985)                     | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| G. affinis (Stein, 1859)                                     | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| G. kuehneli Foissner, 1987                                   | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| O. gibba (Müller, 1773)                                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Paraholosticha herbicola (Kahl, 1932)                        | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| P. polychaeta Borror, 1966                                   | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| P. flava (Berger, 2006)                                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Keronopsis arenivorus Dragesco, 1954                         | +  | +  | +  |    |    |    |    |    |    |    |    |    |    |
| K. longissima Dragesco et Dragesco-Kemel, 1986               | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| K. helluo (Penard, 1922)                                     | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| K. gracilis Dragesco, 1954                                   | +  | +  | +  |    |    |    |    |    |    |    |    |    |    |
| K. pernix Wrzesniowski, 1877                                 | +  | +  | +  |    |    |    |    |    |    |    |    |    |    |
| K. helluo (Penard, 1922)                                     | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| K. pernix Wrzesniowski, 1877                                 | +  | +  | +  |    |    |    |    |    |    |    |    |    |    |
| S. crassum Sterki, 1878                                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |

**Fam. Keronidae Dujardin, 1841**

| Kerona pediculus (Müller, 1773) | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Kerona pediculus (Müller, 1773) | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Paraholosticha herbicola (Kahl, 1932) | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Paraholosticha herbicola (Kahl, 1932) | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| P. polychaeta Borror, 1966 | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| P. flava (Berger, 2006) | +  |    |    |    |    |    |    |    |    |    |    |    |    |

**Order Urostylida Jankowski, 1979**

**Fam. Pseudokeronopsidae Borror et Wicklow, 1983**

| Pseudokeronopsis rubra (Ehrenberg, 1838) | +  | +  | +  | +  | +  |    |    |    |    |    |    |    |
| P. carnea (Cohn, 1866) | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| P. flavus (Cohn, 1866) | +  | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| P. sepetibensis Wanick et Da Silva Neto, 2004 | +  | +  |    |    |    |    |    |    |    |    |    |    |    |

**Fam. Bakuellidae Jankowski, 1979**

| Bakuella marina Agamaliev et Alekperov, 1976 | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| B. crenata Agamaliev et Alekperov, 1976 | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| B. polycirrata Alekperov, 1988 | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| B. imbricata Alekperov, 1982 | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| Metabakuella percella Alekperov et Musaev, 1988 | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| Pseudobakuella wallbonensis (Song, Wilbert, Berger, 1992) | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| P. gracilis Alekperov, 1992 | +  | +  |    |    |    |    |    |    |    |    |    |    |    |

**Fam. Pseudourostylidae Jankowski, 1979**

| Pseudourostyla cristata (Jerka-Dziadosz, 1964) | +  | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| P. leavis Takahashi, 1973 | +  | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| P. ranzl Foissner, 1987 | +  |    |    |    |    |    |    |    |    |    |    |    |    |

**Fam. Urostylidae Bütschli, 1889**

| Urostyla marina Kahl, 1932 | +  | +  | +  | +  | +  |    |    |    |    |    |    |    |    |
| U. grandis Ehrb., 1830 | +  | +  |    |    | +  | +  | +  | +  |    |    |    |    |    |
| U. viridis Stein, 1859 | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| U. dispar Kahl, 1932 | +  | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| U. latissima Dragesco, 1970 | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| U. chlorelligera Foissner, 1980 | +  |    |    |    |    |    |    |    |    |    |    |    |    |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|--------------------------|
|                                                             | 1* | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| U. hologama Heckmann, 1963                                  |    |   |   |   |   |   | + |   |   |    |    |    |    |
| Metaurostyla polonica (Borror, 1972)                        |    |   |   |   |   |   |   |   |   |    |    |    |    |
| M. raikovi (Alekperov, 1987)                                |    |   |   |   |   |   |   |   |   |    |    |    |    |
| Birijimia terricola Berger et Foissner, 1989               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Pseudoamphisiella alveolata (Kahl, 1932)                    | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Paruroleptus gallina (Müller, 1786)                         | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| P. notabilis Berger et Foissner, 1987                       | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Holosticha heterofoissneri Hu et Song, 2001                 |   | + |   |   |   |   |   |   |   |    |    |    |    |
| H. pulsaster (Müller, 1773)                                 | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| H. foissneri Petz, Song et Wilbert, 1995                   | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Anteholosticha monilata (Kahl, 1928)                        |   |   |   |   |   |   |   |   |   |    |    |    |    |
| A. adami (Foissner, 1982)                                   | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| A. pulchra (Kahl, 1932)                                     | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| A. randani (Giuliere, 1975)                                 | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| A. manca (Kahl, 1932)                                       | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| A. grisea (Kahl, 1932)                                      | +  |   |   |   |   |   |   | + |   |    |    |    |    |
| A. muscicola (Gellert, 1956)                                | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| Trichototaxis crassus (Claparede et Lachmann, 1858)        | +  |   |   |   |   |   | + |   |   |    |    |    |    |
| T. velox (Quennerstedt, 1869)                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| T. pulchra Borror, 1972                                     | +  |   |   |   |   |   |   |   |   |    |    |    |    |

Order Euplotida Jankowski, 1980
Fam. Kiitrichidae Nozawa, 1941

| Musajevella minima Alekperov, 1984                          | +  |   |   |   |   |   |   |   |   |    |    |    |    |

Fam. Euplotidae Ehrenberg, 1838

| Euplotes raikovi Agamaliev, 1966                            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. khazarica Alekperov, Buskey, Snegovaya, 2006             | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. pseudoraikovi Alekperov, 2005                            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. harpa Stein, 1859                                       | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. balteatus Dujardin, 1842                                | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. eurytomus Wrezenskiowski, 1870                           | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. gracilis Kahl, 1932                                     | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. minuta Yocom, 1930                                      | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. vannus (Müller, 1786)                                    | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. rariset Curds, West et Dorahy, 1974                     | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. focardi Valbonesi et Luporini, 1990                      | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. charon (Müller, 1786)                                    | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. alatus Kähl, 1932                                       | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. corsica Berger et Foisner, 1989                         | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. trisulcatus Kahl, 1932                                  | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. octocirratus Agamaliev, 1967                            | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. aphtheroncus Agamaliev, 1966                             | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. muscicola Kahl, 1932                                    | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. polianskyi Agamaliev, 1966                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
| E. streilovi Agamaliev, 1967                               | +  |   |   |   |   |   |   |   |   |    |    |    |    |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| 191  E. dogieli Agamaliev, 1967                             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 192  E. patella (Müller, 1773)                              | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 193  E. kurekshayi Aliev, 1987                              |    |    |    |    |    |    |    |    |    | +  |    |    |    |
| 194  E. sharuri Aliev, 1987                                 |    |    |    |    |    |    |    |    |    |    | +  |    |    |
| 195  E. ogusi Aliev, 1987                                   |    |    |    |    |    |    |    |    |    |    |    | +  |    |
| 196  E. kasymovi Aliev, 1987                                 |    |    |    |    |    |    |    |    |    |    |    |    | +  |
| 197  Aspidisca fusca Kahl, 1928                              | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 198  A. leptaspis Fresenius, 1865                           | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 199  A. pulcherrima Kahl, 1932                              | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 200  A. aculeata (Ehrenberg, 1838)                          | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 201  A. dentata Kahl, 1928                                  | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 202  A. cicada Müller, 1786                                 | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 203  A. binucleata Kahl, 1932                               | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 204  A. magna Kahl, 1930                                    | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 205  A. squita (Ehrenberg, 1838)                            | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 206  A. polystyla Stein, 1859                               |    | +  | +  |    |    |    |    |    |    |    |    |    |    |
| 207  A. mutans Kahl, 1932                                   |    |    |    | +  | +  |    |    |    |    |    |    |    |    |
| 208  A. sedigita Quennerstedt, 1867                         | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 209  A. poljanski Alekperov, 1985                           | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 210  A. steini Buddenbrock, 1920                            | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 211  A. caspica Agamaliev, 1967                             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 212  Diophrys scutum Dujardin, 1841                         | +  | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| 213  D. multicirratus Alekperov, 1984                       | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 214  D. polycirratus Alekperov, 1984                        | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 215  D. oligothrix Borror, 1965                             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 216  D. kasyovov Agamaliev, 1971                            | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 217  D. scutoides Agamaliev, 1967                           | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 218  D. quadricaudatus Agamaliev, 1967                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 219  Uronychia transfuga (Müller, 1776)                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 220  U. binucleata Young, 1922                              | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 221  U. setigera Calkins, 1902                              |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 222  U. heinrothi Buddenbrock, 1920                         | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 223  U. bivalvarum Fenchel, 1965                            | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 224  U. invicta Alekperov, 1985                             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 225  U. caspica Alekperov et Asadullayeva, 1999             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 226  U. magna Pierantoni, 1909                              | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 227  Halteria grandinella (Müller, 1786)                     | +  | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| 228  H. maxima Szabo, 1934                                  | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 229  H. bifurcata Tamar, 1968                               | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 230  H. oviformis Gelei, 1950                               | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 231  H. geleiana Szabo, 1935                                |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| Taxonomic composition of the Phylum Ciliophora Doeflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|------------------------|
|                                                            | 1 2 3 4 5 6 7 8 9 10 11 12 13 |
| 232 H. tamari Dragesco et Dragesco-Kerneis, 1986            | +                        |
| 233 Pelagohalteria virida (Fromentel, 1876)                 | + + + + + + + + + + + + + + |
| 234 *P. cirrifera* (Kahl, 1912)                            | + + + + + + + + + + + + + + |

Order Strombidiiida Jankowski, 1980

Fam. Strombidiiidae Fauré-Fremiet, 1970

|                                                            | 1 2 3 4 5 6 7 8 9 10 11 12 13 |
|-------------------------------------------------------------|------------------------|
| 235 Omegastrombidium elegans (Florentin, 1901)              | + + + + + + + + + + + + + + |
| 236 Arcostrombidium grande (Levander, 1894)                | + + + + + + + + + + + + + + |
| 237 Heterostrombidium calcins Fauré-Fremiet, 1932          | + + + + + + + + + + + + + + |
| 238 H. faurei (Dragesco, 1960)                             | + + + + + + + + + + + + + + |
| 239 H. clavellinae (Buddenbrock, 1922)                     | + + + + + + + + + + + + + + |
| 240 Limnostrombidium viride (Stein, 1867)                  | + + + + + + + + + + + + + + |
| 241 Novistrombidium testaceum (Anigstein, 1914)            | + + + + + + + + + + + + + + |
| 242 Spirostrombidium coronatum (Sauerbrey, 1928)           | + + + + + + + + + + + + + + |
| 243 S. cinctum Kahl, 1932                                  | + + + + + + + + + + + + + + |
| 244 Pelagostrombidium mirabile (Penard, 1916)              | + + + + + + + + + + + + + + |
| 245 P. fallax (Zacharias, 1896)                            | + + + + + + + + + + + + + + |
| 246 Strombidium obtusum Alekperov et Mamaeva, 1992         | + + + + + + + + + + + + + + |
| 247 S. apsheronicum Alekperov et Asad., 1997               | + + + + + + + + + + + + + + |
| 248 S. kahli Bock, 1952                                   | + + + + + + + + + + + + + + |
| 249 S. elegans Fiorentin, 1899                             | + + + + + + + + + + + + + + |
| 250 S. arenicola Dragesco, 1960                            | + + + + + + + + + + + + + + |
| 251 S. oculatum Gruber, 1888                              | + + + + + + + + + + + + + + |
| 252 S. obliquum Kahl, 1932                                 | + + + + + + + + + + + + + + |
| 253 S. elatum Alekperov, 1985                             | + + + + + + + + + + + + + + |
| 254 S. caspicum Alekperov et Asadullaeva, 1997             | + + + + + + + + + + + + + + |
| 255 S. conicosoides (Leegaard, 1915)                       | + + + + + + + + + + + + + + |
| 256 S. nabranicum Alekperov, Buskey, Snegovaya, 2005       | + + + + + + + + + + + + + + |

Order Strombidiiida Jankowski, 1980

Fam. Strombidinopsidae Small et Lynn, 1985

|                                                            | 1 2 3 4 5 6 7 8 9 10 11 12 13 |
|-------------------------------------------------------------|------------------------|
| 257 Strombidinopsis claparedi Kent, 1881                    | + + + + + + + + + + + + + + |
| 258 S. elongata Song et Bradbury, 1998                     | + + + + + + + + + + + + + + |
| 259 S. elegans Song et Bradbury, 1998                      | + + + + + + + + + + + + + + |
| 260 S. spinifera (Leegaard, 1915)                          | + + + + + + + + + + + + + + |
| 261 S. azerbaijanica Alekperov et Asadullaeva, 1997         | + + + + + + + + + + + + + + |

Fam. Strombidiiidae Kahl in Doeflein et Reich., 1929

|                                                            | 1 2 3 4 5 6 7 8 9 10 11 12 13 |
|-------------------------------------------------------------|------------------------|
| 262 Strombidium caudatum (Fromentel, 1876)                  | + + + + + + + + + + + + + + |
| 263 S. marinum Fauré-Fremiet, 1924                          | + + + + + + + + + + + + + + |
| 264 S. conicum Kahl, 1932                                  | + + + + + + + + + + + + + + |
| 265 Rimnostrombidium velox (Fauré-Fremiet, 1924)            | + + + + + + + + + + + + + + |
| 266 R. humile (Penard, 1922)                               | + + + + + + + + + + + + + + |
| Table 1. (Continuation) |
|-------------------------|
| **Taxonomic composition of the** | **Distribution by regions** |
| **Phylum Ciliophora Doflein, 1901** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** |
| 267 Pelagostrobilidium neptuni Montagnes et Taylir, 1994 | +  | +  |
| 268 P. spirale (Leegaard, 1915) | +  | +  |
| **Order Tintinnida Kofoid et Campbell, 1929** | **Fam. Codonellidae Kent, 1981** |
| 269 Codonella cratera (Leidy, 1877) | +  | +  |  |
| 270 C. relicta Minkewitch, 1909 | +  | +  |  |
| 271 Tintinnopsis cylindrata Kofoid et Campbell, 1892 | +  | +  |  |
| **Class Armophorea Lynn, 2002** | **Order Metopida Jankowski, 1980** | **Fam. Metopidae Kahl, 1927** |
| 272 Metopus acidiferus Kahl, 1935 | +  | +  | +  | +  |
| 273 M. caucasicus Alekperov, 1984 | +  | +  | +  |  |
| 274 M. fusoides Alekperov, 1984 | +  | +  | +  |  |
| 275 M. contortus (Quennerstedt, 1867) | +  |  |  |
| 276 M. es (Mulier, 1876) | +  |  |  |
| 277 M. halophilus Kahl, 1932 | +  | +  | +  |  |
| 278 M. major Kahl, 1932 | +  |  |  |
| 279 M. propagatus Kahl, 1927 | +  | +  | +  | +  |
| 280 M. vestitus Kahl, 1935 | +  | +  | +  |  |
| 281 Branchonella caduca (Kahl, 1927) | +  | +  |  |
| 282 B. mitriformis Alekperov, 1984 | +  | +  | +  |  |
| 283 B. spiralis (Smith, 1897) | +  | +  |  |
| 284 B. darwini (Kahl, 1927) | +  | +  |  |
| 285 B. elongata Jankowski, 1964 | +  | +  |  |
| **Order Armophorida Jankowski, 1964** | **Fam. Caenomorphidae Poche, 1913** |
| 286 Caenomorpha medusula Perty, 1852 | +  | +  | +  |  |
| 287 C. levanderi Kahl, 1927 | +  |  |  |
| 288 C. lauterborni Kahl, 1927 | +  | +  | +  |  |
| **Order Odontostomatida Sawaya, 1940** | **Fam. Epalxellidae Corliss, 1960** |
| 289 Pelodinium rotundum Kahl, 1926 | +  | +  |  |
| 290 Epalxella mirabilis (Roux, 1899) | +  |  |  |
| 291 E. antiquorum (Penard, 1922) | +  | +  |  |
| 292 E. triangula (Kahl, 1932) | +  | +  |  |
| 293 E. elliptica (Penard, 1922) | +  |  |  |
| 294 E. strata (Kahl, 1926) | +  | +  |  |
| 295 Saprodinium dentatum (Lauterborn, 1908) | +  | +  |  |
| 296 S. halophilum Kahl, 1932 | +  | +  | +  |  |
| 297 S. putrinum Lackey, 1925 | +  |  |  |
| 298 S. mimeticum (Penard, 1922) | +  |  |  |
| 299 S. spingerum Kahl, 1932 | +  |  |  |
| **Fam. Mylestomatidae Kahl in Doflein et Reich., 1929** |
| 300 Mylestoma flagellatum Penard, 1922 | +  |  |  |
| 301 M. uncinatus (Penard, 1922) | +  |  |  |
| 302 M. bipartitum (Gourret et Roesser, 1886) | +  | +  |  |
| 303 M. pusillum Kahl, 1932 | +  |  |  |
### Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| **Class Litostomatea Small et Linn, 1981**                  |   |   |   |   |   |   |   |   |   |    |    |    |    |
| **Order Haptoridea Corliss, 1974**                          |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Fam. Fuscheriidae Foissner, Agatha et Berger, 2002          |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Fuscheria nodosa Foissner, 1983                             | + |   |   |   |   |   |   |   |   |    |    |    |    |
| F. terricola Berger, Foissner et Adam, 1983                 | + |   |   |   |   |   |   |   |   |    |    |    |    |
| **Fam. Enchelidotidae Foissner, Agatha et Berger, 2002**    |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Enchelidon armatides Foissner, Agatha et Berger, 2002       | + |   |   |   |   |   |   |   |   |    |    |    |    |
| **Fam. Enchelyidae Ehrenberg, 1838**                        |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Enchelys gasterosteus Kahl, 1926                            | + |   |   |   |   |   |   |   |   |    |    |    |    |
| E. marina (Meunier, 1910)                                   | + |   |   |   |   |   |   |   |   |    |    |    |    |
| E. pectinata Kahl, 1930                                     | + |   |   |   |   |   |   |   |   |    |    |    |    |
| E. simplex Kahl, 1926                                       | + |   |   |   |   |   |   |   |   |    |    |    |    |
| E. lencoranicic Akeperov, 1984                             |   | + |   |   |   |   |   |   |   |    |    |    |    |
| Papillorhabdos multinucleatus Foissner, 1984                | + |   |   |   |   |   |   |   |   |    |    |    |    |
| Lagyntophyra mutans Kahl, 1927                              | + |   |   |   |   |   |   |   |   |    |    |    |    |
| L. halophila Kahl, 1930                                     | + |   |   |   |   |   |   |   |   |    |    |    |    |
| L. pumilio Mansfeld, 1923                                   | + |   |   |   |   |   |   |   |   |    |    |    |    |
| L. maxima Burkovski, 1970                                   | + |   |   |   |   |   |   |   |   |    |    |    |    |
| **Fam. Trachelophyllidae Kent, 1882**                       |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Trachelophyllum vestitum Stokes, 1886                       | + |   |   |   |   |   |   |   |   |    |    |    |    |
| T. pusillum Claparede et Lachmann, 1858                     | + |   |   |   |   |   |   |   |   |    |    |    |    |
| T. clavatum Stokes, 1886                                    | + |   |   |   |   |   |   |   |   |    |    |    |    |
| T. triangularum Tucolesco, 1962                            | + |   |   |   |   |   |   |   |   |    |    |    |    |
| T. apiculatum (Perty, 1852)                                 | + |   |   |   |   |   |   |   |   |    |    |    |    |
| T. attenuatum Tucolesco, 1962                              | + |   |   |   |   |   |   |   |   |    |    |    |    |
| **Fam. Lacrymarlidae Fromentel, 1876**                      |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Lacrymaria alor (Müller, 1786)                              | + | + |   |   |   | + | + |   |   |    |    |    |    |
| L. marina Kahl, 1933                                       | + | + |   |   | + | + | + |   |   |    |    |    |    |
| L. kahl Dragesco, 1954                                     | + | + |   |   | + | + | + |   |   |    |    |    |    |
| L. pulchra Wenzel, 1953                                    | + | + |   |   |   | + | + |   |   |    |    |    |    |
| L. lagenula Kahl, 1927                                     | + |   |   |   |   |   |   |   |   |    |    |    |    |
| L. acuta Kahl, 1933                                        | + |   |   |   |   |   |   |   |   |    |    |    |    |
| L. minuta Dragesco, 1963                                   | + | + |   |   |   |   | + |   |   |    |    |    |    |
| L. spiralis Corliss and Snyder, 1986                       | + |   |   |   |   |   | + |   |   |    |    |    |    |
| L. cucumis Penard, 1922                                    | + | + |   |   |   |   |   | + |   |    |    |    |    |
| L. delmari (Dragesco, 1954)                                | + | + |   |   |   |   |   |   | + |    |    |    |    |
| Pelagolacrymaria moserae Foissner, Berger et Schaumburg, 1999 | + |   |   |   |   |   |   |   |   |    |    |    |    |
| P. rostrata Kahl, 1935                                     | + |   |   |   |   |   |   |   |   |    |    |    |    |
| Phialina pupula (Müller, 1773)                              | + | + |   |   |   | + |   |   |   |    |    |    |    |
| P. vermicularis (Müller, 1773)                             | + | + |   |   |   |   |   |   |   |    |    |    |    |
| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|----------------------------------------------------------|-------------------------|
|                                                          | 1*  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
| P. conifera (Burkovsky, 1970)                           | +   | +   |     |     |     |     |     |     |     |     |     |     |     |
| P. vertens (Stokes, 1885)                               |     |     | +   | +   |     |     |     |     |     |     |     |     |     |
| P. macrostoma Foissner, 1983                            |     |     |     | +   |     |     |     |     |     |     |     |     |     |
| P. decussata (Tucolesco, 1962)                          |     |     |     |     | +   | +   |     |     |     |     |     |     |     |
| P. ovata Burkovsky, 1970                                |     |     |     |     |     |     | +   | +   |     |     |     |     |     |

**Fam. Spathidiidae Kahl, 1929**

|                                                          | 1*  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
| Spathidium procerum Kahl, 1930                          |     |     |     |     |     |     |     |     | +   |     |     |     |     |
| S. porculus Penard, 1922                                |     |     |     |     |     |     |     |     |     | +   |     |     |     |
| S. moniliforme Bhatia, 1920                             |     |     |     | +   | +   |     |     |     |     |     |     |     |     |
| S. deforme (Kahl, 1928)                                 |     |     |     |     | +   | +   |     |     |     |     |     |     |     |
| S. chlorelligerum Kahl, 1930                            |     |     |     |     |     | +   |     |     |     |     |     |     |     |
| S. cetiforme Foissner, 1984                             |     |     |     |     |     |     | +   |     |     |     |     |     |     |
| S. meloforme Foissner, 1983                             |     |     |     |     |     |     |     | +   |     |     |     |     |     |
| S. extensum Kahl, 1933                                  |     |     |     |     |     |     |     |     | +   |     |     |     |     |
| S. fossicola Kahl, 1933                                 |     |     |     |     |     |     |     |     |     | +   | +   |     |     |
| S. binucleatum Lepsi, 1964                              |     |     |     |     |     |     |     |     |     |     | +   |     |     |
| S. amphoriforme Greff, 1888                             |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| S. seppelti Petz et Foissner, 1997                      |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| Supraspathidium vermiciforme (Penard, 1922)             |     |     |     |     |     |     |     |     | +   | +   |     |     |     |
| S. polyvacuolatum (Vuxanovici, 1959)                    |     |     |     |     |     |     |     |     |     | +   | +   |     |     |
| S. latissimum (Lepsi, 1959)                             |     |     |     |     |     |     |     |     |     |     | +   | +   |     |
| S. spathula (Müller, 1786)                              |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| S. armatum Foissner, Agatha et Berger, 2002             |     |     |     |     |     |     |     |     |     | +   | +   |     |     |
| S. teres (Stokes, 1886)                                 |     |     |     |     |     |     |     |     |     |     | +   | +   |     |
| S. procerum Kahl, 1930                                  |     |     |     |     |     |     |     |     |     |     | +   | +   | +   |
| Epispathidium ascendens (Wenzel, 1953)                  |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| E. polynucleatum Foissner, Agatha et Berger, 2002       |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| Arcuospathidium cultiforme (Penard, 1922)               |     |     |     |     |     |     |     |     |     | +   | +   |     |     |
| A. novaki Foissner, Agatha et Berger, 2002              |     |     |     |     |     |     |     |     |     |     | +   | +   |     |
| Protospathidium muscicola Dragesco et Dragesco-Kerneis, 1979 |     |     |     |     |     |     |     |     |     |     |     | +   | +   |
| P. terricola Foissner, 1998                             |     |     |     |     |     |     |     |     |     | +   | +   |     |     |
| Perispira ovum Stein, 1859                             |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| P. strephostoma Stokes, 1886                           |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| P. oligospira Gelei, 1954                               |     |     |     |     |     |     |     |     |     |     |     |     | +   |

**Fam. Didiniidae Poche, 1913**

|                                                          | 1*  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
| Monodinium baibianii Fabre-Domerque, 1888                | +   |     | +   | +   | +   |     |     |     |     |     |     |     |     |
| M. perrieri Delphy, 1925                                 | +   | +   | +   |     |     |     |     |     |     |     |     |     |     |
| M. alveolatum Kahl, 1930                                |     | +   | +   | +   |     |     |     |     |     |     |     |     |     |
| M. chlorelligerum Krainer, 1995                         |     |     |     | +   | +   |     |     |     |     |     |     |     |     |
| Didinium nasutum (Müller, 1773)                         |     |     |     |     | +   | +   | +   | +   |     |     |     |     |     |
| D. chlorelligerum Kahl, 1935                            |     |     |     |     |     | +   | +   | +   |     |     |     |     |     |
| D. gargantua Meinier, 1907                              |     |     |     |     |     |     | +   | +   |     |     |     |     |     |
| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|------------------------------------------------------------|-------------------------|
|                                                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Fam. Trachelidae Ehrenberg, 1838                           |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 381 * Dileptus mucronatus Penard, 1922                      | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 382 * D. breviproboscis Foissner, 1981                      | + | + |   |   |   |   |   |   |   |   |   |   |   |
| 383 * D. orientalis Song, Pakroff et Wilbert, 1988          | + |   | + |   |   |   |   |   |   |   |   |   |   |
| 384 * D. cygnus (Claparede et Lachmann, 1859)              | + | + |   |   |   |   |   |   |   |   |   |   |   |
| 385 Pelagodi leptus *rachelioides* (Zacharias,            |   |   |   | + | + |   |   |   |   |   |   |   |   |
| 386 * Paradileptus ephthantinus (Svec, 1897)               | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 387 * P. conicus Wenrich, 1929                             |   |   |   |   |   |   |   |   |   | + |   |   |   |
| 388 Trachelius ovum Ehrenberg, 1831                        |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 389 Teutophysys insulae (Chatton et de Beauchamps, 1923)   |   |   |   |   |   |   |   |   |   | + |   |   |   |
| 390 Paraspathidium obliquum Dragessos, 1963                |   | + | + | + | + |   |   |   |   |   |   |   |   |
| 391 * P. fuscum Kahl, 1928                                 | + | + | + | + |   |   |   |   |   |   |   |   |   |
| 392 * P. longinucleatum Caspi et Jordan, 1976              |   |   |   |   |   | + |   |   |   |   |   |   |   |
| Order Cyclotrichida Jankowski, 1980 Fam. Mesodiniidae Jankowski, 1980 |
| 393 * Askennasia confunis Alekperov, 1984                  | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 394 * A. mobilis Alekperov, 1984                          | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 395 * A. elegans (Fauré-Fremiet, 1924)                     | + | + |   |   |   |   |   |   |   |   |   |   |   |
| 396 * A. chlorelligera Kainer et Foissner, 1990            | + | + |   |   |   |   |   |   |   |   |   |   |   |
| 397 * A. volvus (Eichwald, 1852)                           | + |   |   |   |   | + |   |   |   |   |   |   |   |
| 398 * A. stellars (Leegard, 1920)                          |   | + | + |   |   |   |   |   |   |   |   |   |   |
| 399 * Mesodinium acarus (Claparede et Lachmann, 1859)      | + | + | + | + | + |   |   |   |   |   |   |   |   |
| 400 * M. apsheronicum Alekperov et Aazdilayaeva, 1996      | + |   | + |   |   |   |   |   |   |   |   |   |   |
| 401 * M. cinctum Kahl, 1930                                | + | + | + | + | + |   |   |   |   |   |   |   |   |
| Fam. Cyclotrichiidae Jankowski, 1980                      |
| 402 Cyclotrichium cyclokaryon Meunier, 1910                | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 403 C. gigas Fauré-Fremiet, 1924                           | + | + |   |   |   |   |   |   |   |   |   |   |   |
| 404 C. inflatum Alekperov, 1984                            |   | + |   |   |   |   |   |   |   |   |   |   |   |
| 405 C. ovatum Fauré-Fremiet, 1924                          | + | + |   |   |   |   |   |   |   |   |   |   |   |
| Order Pleurostomatida Schewiakoff, 1896 Fam. Amphileptidae Butschli, 1889 |
| 406 Amphileptus ciaparedii Stein, 1867                     | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 407 A. punctatus (Kahl, 1926)                              | + |   | + |   |   |   |   |   |   |   |   |   |   |
| 408 A. fusiformis Song et Wilbert, 1989                    | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 409 A. falcatus Song et Wilbert, 1989                      | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 410 A. procerus (Penard, 1922)                             | + |   | + |   |   |   |   |   |   |   |   |   |   |
| 411 Litonotus triqueter Penard, 1922                       | + |   | + |   |   |   |   |   |   |   |   |   |   |
| 412 L. obtusus Maupas, 1888                                | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 413 L. minusculus Song et Wilbert, 1989                    | + |   |   |   |   |   |   |   |   |   |   |   |   |
| 414 L. crystallinus (Vuxanovic, 1960)                      | + |   | + |   |   |   |   |   |   |   |   |   |   |
| 415 L. anguilla Kahl, 1931                                 | + | + | + |   |   |   |   |   |   |   |   |   |   |
| 416 L. uninucleatus (Kahl, 1931)                           | + | + | + |   |   |   |   |   |   |   |   |   |   |
| 417 L. mononucleatus Song et Wilbert, 1989                 | + | + | + |   |   |   |   |   |   |   |   |   |   |
| 418 Loxophyllum meleagris (Müller, 1773)                   | + | + | + |   |   |   |   |   |   |   |   |   |   |
| 419 L. helus Stokes, 1884                                  | + | + | + |   |   |   |   |   |   |   |   |   |   |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| 420 | L. vorax Stokes, 1886 | + | + |   |   | + |   |   |   |   |
| 421 | L. multiplicatum Kahl, 1931 |   |   |   |   |   |   | + |   |   |   |
| 422 | L. undulatum Sauerbrey, 1928 | + | + |   |   |   |   |   |   |   |   |
| 423 | L. semilunare Vuxanovich, 1960 | + | + |   |   |   |   |   |   |   |   |
| 424 | L. hyalinum Vacelet, 1961 |   |   |   |   |   |   | + | + |   |   |

Class Phyllopharyngea Puytorac et al., 1974
Chlamidodonta Deroux, 1976
Fam. Chilodonellidae Deroux, 1970

| 425 | Chilodonella uncinata (Ehrenberg, 1838) |   |   |   |   |   |   |   | + |   |
| 426 | C. aplanata Kahl, 1932 | + |   | + | + |   |   |   |   |   |
| 427 | C. capucina (Penard, 1922) |   | + | + | + |   |   |   |   |   |
| 428 | Trithigmostoma steini (Blochmann, 1895) |   |   | + | + | + | + | + |   |   |
| 429 | T. bavaricensis (Kahl, 1931) | + |   |   |   |   |   |   |   |   |
| 430 | T. cucullulus (Müller, 1786) |   |   | + | + | + | + | + | + |   |
| 431 | T. filicina (Kidder et Summers, 1935) | + | + |   |   |   |   |   |   |   |
| 432 | Alinostoma multivacuolatum Alekperov, 1993 | + |   |   |   |   |   |   |   |   |
| 433 | A. polyvacuolatum (Foisner et Didier, 1981) | + |   |   |   |   |   |   |   | + |

Fam. Gastronautidae Deroux, 1994

| 434 | Gastronota membraneceus Engelmann in Bütschli, 1889 |   |   |   |   |   |   |   |   | + |
| 435 | G. derouxi Blatterer et Foisner, 1992 |   |   |   |   |   |   |   |   | + |

Fam. Chlamydodontidae Stein, 1859

| 436 | Chlamydodon mnemosyne Ehrenberg, 1835 |   |   | + |   | + |   |   |   |   |
| 437 | C. obliquus Kahl, 1931 | + |   | + | + |   |   |   |   |   |
| 438 | C. asperor Dreskow, 1966 | + |   |   |   |   |   |   |   |   |
| 439 | C. rectus Ozaki et Yagi, 1941 | + |   | + | + |   |   |   |   |   |
| 440 | C. cyclops Entz, 1886 | + |   |   |   |   |   |   |   |   |
| 441 | C. roseus Dragesco, 1885 | + |   |   |   |   |   |   |   |   |

Fam. Dysteriidae Deroux, 1976

| 442 | C. erythrochrous (Perejaslawzewa, 1885) | + |   |   |   |   |   |   |   |   |
| 443 | C. major (Kahl, 1931) | + |   |   |   |   |   |   |   |   |
| 444 | C. majoris (Kahl, 1931) | + |   |   |   |   |   |   |   |   |

Order Dysteriidae Deroux, 1976
Fam. Dysteriidae Claparede et Lachmann, 1858

| 447 | Dysteria praelata (Kahl, 1931) | + | + |   |   |   |   |   |   |   |
| 448 | D. monostyla (Ehrenberg, 1838) | + |   | + |   |   |   |   |   |   |
| 449 | D. pectinata (Nowlin, 1910) | + |   | + |   |   |   |   |   |   |
| 450 | D. parvalis Wilbert and Song, 2003 | + |   |   |   |   |   |   |   |   |
| 451 | D. armata Huxley, 1857 | + |   |   |   |   |   |   |   |   |
| 452 | D. ovalis (Pertuil et Rouger, 1886) | + |   |   |   |   |   |   |   |   |
| 453 | D. caudata (Kahl, 1931) | + |   |   |   |   |   |   |   |   |
| 454 | D. navicula Kahl, 1928 | + |   |   |   |   |   |   |   |   |
| 455 | D. sulcata Claparede et Lachmann, 1885 | + |   |   |   |   |   |   |   |   |
| 456 | D. marioni Gourret et Roester, 1887 | + |   |   |   |   |   |   |   |   |
| Taxonomic composition of the Phylum Ciliophora Do\lfein, 1901 | Distribution by regions |
|-------------------------------------------------------------|------------------------|
|                                                            | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| Fam. Hartmanulidae Poche, 1913                             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 457 Hartmanula acrobates Brodsky, 1908                      | +  | +  |    |    |    |    |    |    |    |    |    |    |    |
| 458 H. enzi Kahl, 1931                                     |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 459 H. ocellata Tucolesco, 1962                            |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 460 H. angustipilosa Deroux et Dragesco, 1968               |    |    | +  | +  |    |    |    |    |    |    |    |    |    |
| Fam. Hartmanulidae Poche, 1913                             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Class Nassophorea Small et Lynn, 1981                      |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order Synhymeniida Puytorac et al., 1974                   |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Fam. Orthodonellidae Jankowski, 1968                       |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 461 Chilidontopsis depressa (Perty, 1852)                   |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 462 C. kureensis Alekperov, 1985                           |    |    | +  |    |    |    |    |    |    |    |    |    |    |
| 463 C. vermiliformis Deroux, 1978                           |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 464 Zosterodasys debilis Alekperov, 1984                    |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 465 Z. caspica Fernandez-Leborans et Alekperov, 1995        |    |    | +  |    |    |    |    |    |    |    |    |    |    |
| 466 Z. cantabrica Fernandez-Leborans et Alekperov, 1995     |    |    | +  |    |    |    |    |    |    |    |    |    |    |
| 467 Z. mirabilis Alekperov, 1984                           |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 468 Z. fluvatilis Fern.-Leb. et Alekperov, 1995             |    |    |    | +  |    |    |    |    |    |    |    |    |    |
| 469 Z. vorax (Stokes, 1887)                                |    |    |    | +  |    |    |    |    |    |    |    |    |    |
| 470 Z. aizadei Aliev, 1990                                 |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 471 Z. azerbaijanicus Aliev, 1990                          |    |    |    |    |    | +  |    |    |    |    |    |    |    |
| 472 Z. raikovi Aliev, 1990                                 |    |    |    |    |    |    | +  |    |    |    |    |    |    |
| 473 Z. jankowski Aliev, 1990                               |    |    |    |    |    |    |    | +  |    |    |    |    |    |
| 474 Z. shumerica Aliev, 1990                               |    |    |    |    |    |    |    |    | +  |    |    |    |    |
| 475 Z. kureensis Aliev, 1990                               |    |    |    |    |    |    |    |    |    | +  |    |    |    |
| 476 Z. kasymovi Aliev, 1990                                |    |    |    |    |    |    |    |    |    |    | +  |    |    |
| Order Nassulida Jankowski, 1968                            |    |    |    |    |    |    |    |    |    |    |    | +  |    |
| Fam. Nassulopsidae Deroux in Corliss, 1979                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 477 Nassulopsis elegans (Ehrenberg, 1833)                   |    |    |    | +  |    |    |    |    |    |    |    |    |    |
| 478 N. lanulosa Fauré-Fremiet, 1959                        |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 479 N. musicola Kahl, 1933                                 |    |    |    |    |    | +  |    |    |    |    |    |    |    |
| 480 N. asiatica Alekperov, 1997                            |    |    |    |    |    |    | +  |    |    |    |    |    |    |
| 481 Beersena mirabundis (Alekperov, 1984)                   |    |    |    |    |    |    |    |    |    |    |    |    | +  |
| Fam. Furgasoniidae Corliss, 1979                           |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 482 Furgasonia tricirrata (Gelei, 1932)                     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 483 F. rubens (Perty, 1849)                                |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 484 F. thersae (Fabre-Domergue, 1888)                       |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 485 F. blochmanni Fauré-Fremiet, 1967                       |    |    |    | +  |    |    |    |    |    |    |    |    |    |
| Fam. Nassulidae Fromental, 1874                            |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 486 Nassula ornata Ehrenberg, 1834                          |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 487 N. parva Kahl, 1928                                    |    |    |    |    |    | +  |    |    |    |    |    |    |    |
| 488 N. tumida Maskell, 1887                                |    |    |    |    |    |    | +  |    |    |    |    |    |    |
| 489 N. argentula Biernacka, 1963                           |    |    |    |    |    |    |    | +  |    |    |    |    |    |
| 490 N. marina Alekperov et Asadullaeva, 1967               |    |    |    |    |    |    |    |    | +  |    |    |    |    |
| 491 N. dragescoi Foissner, Agatha, Berger, 2002             |    |    |    |    |    |    |    |    |    | +  |    |    |    |
| 492 N. etoschensis Foissner, Agatha, Berger, 2002           |    |    |    |    |    |    |    |    |    |    | +  |    |    |
| 493 N. tumida Maskell, 1887                                |    |    |    |    |    |    |    |    |    |    |    | +  |    |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| 494 N. terricola Foissner, 1990                             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 495 N. nuchivincia Alekperov, 1984                          |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 496 N. argentula Biéracka, 1963                             | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 497 Obertrumia regina (Alekperov, 1984)                     |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 498 O. aurea (Ehrenberg, 1834)                              |    |    |    |    |    | +  |    |    |    |    |    |    |    |
| 499 O. gracilis (Kahl, 1931)                                |    |    |    |    |    |    |    | +  |    |    |    |    |    |

Order Microthoracida Jankowski, 1967

| Fam. Pseudomicrothoracidae Jankowski, 1967                   |
|-------------------------------------------------------------|
| 500 Pseudomicrothorax agilis Mermod, 1914                     | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 501 P. dubius Maupas, 1883                                  |    | +  |    |    |    |    |    |    |    |    |    |    |    |

Fam. Microthoracidae Wrzesniowski, 1870

| 502 Microthorax pusillus Engelmann, 1862                      | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 503 M. penicilata Vuxanovici, 1961                           |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 504 M. spiniger Penard, 1922                                 |    |    | +  |    |    |    |    |    |    |    |    |    |    |
| 505 M. elegans Kahl, 1931                                    | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 506 M. glaber Kahl, 1926                                     |    |    |    | +  |    |    |    |    |    |    |    |    |    |
| 507 M. transversus Foissner, 1985                            |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 508 M. tridentatus Kahl, 1931                                |    |    |    |    |    | +  |    |    |    |    |    |    |    |
| 509 M. leptopharyngiformis Foissner, 1985                     |    |    |    |    |    |    | +  |    |    |    |    |    |    |
| 510 M. ovinucleatus Sramek-Husék, 1957                       |    |    |    |    |    |    |    | +  |    |    |    |    |    |
| 511 Leptopharynx minimus Alekperov, 1993                      |    |    |    |    |    |    |    |    | +  |    |    |    |    |
| 512 L. costatus Mermod, 1914                                 |    |    |    |    |    |    |    |    |    | +  |    |    |    |
| 513 L. margaritata Alekperov, 1993                           |    |    |    |    |    |    |    |    |    |    | +  |    |    |
| 514 Trochiliopsis opaca Penard, 1922                         |    |    |    |    |    |    |    |    |    |    |    | +  |    |
| 515 Drepanomonas dentate Fresenius, 1858                     |    |    |    |    |    |    |    |    |    |    |    |    | +  |

Class Colpodea Small et Lynn, 1981

Order Colpoda Puytorac et al., 1974

Fam. Colpodidae Bory de St. Vincent, 1826

| 516 Colpoda maupasi Enriques, 1908                           | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 517 C. inflata (Stokes, 1884)                                |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| 518 C. cucullus (Müller, 1773)                               | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 519 C. minima (Alekperov, 1985)                              |    |    |    | +  |    |    |    |    |    |    |    |    |    |
| 520 C. aspera Kahl, 1926                                     |    |    |    |    | +  |    |    |    |    |    |    |    |    |
| 521 C. magna (Gruber, 1879)                                  |    |    |    |    |    | +  |    |    |    |    |    |    |    |
| 522 C. bifurcata Alekperov, 1993                             |    |    |    |    |    |    | +  |    |    |    |    |    |    |
| 523 C. edaphoni Foissner, 1980                               |    |    |    |    |    |    |    | +  |    |    |    |    |    |
| 524 C. colpidopsis Kahl, 1931                                |    |    |    |    |    |    |    |    | +  |    |    |    |    |
| 525 C. oblonga Dragesco, 1972                                |    |    |    |    |    |    |    |    |    | +  |    |    |    |
| 526 C. praestans Penard, 1922                                |    |    |    |    |    |    |    |    |    |    | +  |    |    |
| 527 Bresslaua vorax Kahl, 1931                               |    |    |    |    |    |    |    |    |    |    |    | +  |    |
| 528 B. dissimilis Alekperov, 1985                            |    |    |    |    |    |    |    |    |    |    |    |    | +  |
| 529 B. insidiatrix Claff, Dewey et Kidder, 1941              |    |    |    |    |    |    |    |    |    |    |    |    |    |

Fam. Hausmanniellidae Foissner, 1987

| 530 Hausmaniiella discoides (Gellert, 1956)                   | +  |    |    |    |    |    |    |    |    |    |    |    |    |
| 531 H. patella (Kahl, 1931)                                  |    |    |    |    |    |    |    |    |    |    |    |    | +  |
| 532 H. quinquecristata (Gellert, 1955)                       |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 533 Avestina acuta (Buikamp, 1977)                           |    |    |    |    |    |    |    |    |    |    |    |    |    |
### Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doelien, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                            | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| Fam. Grossglockneriidae Foissner, 1980                      |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 534 Grossglockneria acuta Foissner, 1980                     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 535 G. hyalina Foissner, 1985                                |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 536 Pseudoplatyophrya nana (Kahl, 1926)                       |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 537 P. terricola Foissner, 1985                              |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order Bursariomorphida Fernandez-Galiano, 1978 Fam. Bursaridae Foissner, 1993 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 538 Bursaria truncatella Müller, 1773                         |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 539 B. ovata Beers, 1952                                     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order Bryophryida Puytorac, Perez-Paniagua et Perez-Silva, 1979 Fam. Bryophryidae Puytorac, Perez-Paniagua et Perez-Silva, 1979 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 540 Bryophrya bavariensis Kahl, 1931                          |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 541 B. rubescens (Penard, 1922)                              |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 542 B. flexibilis (Penard, 1922)                              |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order Cyrtolophosidida Foissner, 1978 Fam. Cyrtolophosididae Stokes, 1888 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 543 Cyrtolophosis mucicola Stokes, 1885                       |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 544 C. bivacuolata Vuxanovic, 1963                           |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 545 C. minor Vuxanovic, 1963                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 546 C. acuta Kahl, 1926                                      |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order Platyophryidae Puytorac, Per.-Pan. et P.-Silva, 1979    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 547 Platyophrya vorax Kahl, 1926                             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 548 P. spumacola Kahl, 1927                                  |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 549 P. sphagni (Penard, 1922)                                |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 550 P. dubia Foissner, 1980                                  |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order Woodruffidae Gelei, 1954                              |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 551 Rostrophrya falcata Alekperov, 1984                       |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 552 R. regis Njine, 1993                                     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 553 R. camerounensis Njine, 1979                              |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 554 Woodruffa rostrata Kahl, 1931                            |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Order, Briometopida Foissner, 1985 Fam. Briometopidae Jankowski, 1980 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 555 Briometopus pseudochilodon Kahl, 1932                     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 556 B. sphagni (Penard, 1922)                                |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 557 Thylakidium truncatum Schewiakoff, 1892                  |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 558 T. macrostomum Alekperov, 1991                           |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 559 T. magnus Alekperov, 1991                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Class Prostomatea Small et Lynn, 1985 Fam. Colepidae Nitzsch, 1827 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 560 Coleps remanei Kahl, 1933                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 561 C. trichotus Savi, 1913                                  |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 562 C. spiralis Noland, 1937                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 563 C. arenicolus Dragesco, 1965                             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 564 C. spinosus Vacelet, 1961                                |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 565 C. bicuspis Noland, 1925                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 566 C. pulcher Spiegel, 1926                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 567 C. elongatus Ehrenberg, 1833                             |    |    |    |    |    |    |    |    |    |    |    |    |    |
### Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                            | 1| 2| 3| 4| 5| 6| 7| 8| 9| 10| 11| 12| 13 |
| C. amphacanthus Ehrenberg, 1833                             | + | + |
| C. isacustris Fauré-Fremiet, 1924                           | + | + | + | + | + |
| C. nolandi Kahl, 1930                                       | + | + | + |
| C. hirtus Nitzsch, 1921                                     | + | + | + | + | + | + |
| C. tessellatus Kahl, 1930                                   | + | + | + |

**Fam. Holophryidae Perty, 1852**

| Holophrya saginata Penard, 1922                             | + | + |
| H. gracilis Penard, 1922                                    | + |
| H. migrans Lauterborn, 1894                                 | + |
| H. vorax Dragesco, 1960                                     | + | + | + |
| H. salinarum Foissner, Agata et Berger, 2002                | + | + | + |
| H. carchesii Canella, 1964                                  | + | + |
| H. africana Dragesco, 1965                                  | + | + |
| H. spiricyrophaga (Leipe, 1989)                             | + | + |

**Fam. Placididae Small et Lynn, 1985**

| Placida longinucleatus Song and Wilbert, 1989               | + | + |
| P. striatus Cohn, 1856                                      | + |

**Fam. Plagiocampidae Kahl, 1926**

| Plagiocampa mutabile Schewiakoff, 1893                     | + |
| P. kurensis Alekperov, 2005                                | + |
| P. atra Grandori, 1934                                     | + |
| P. acuminata Kahl, 1933                                    | + |
| P. caudata Alekperov, 1984                                 | + | + |
| P. binucleata Tucolesco, 1962                              | + |
| P. multiseta Kahl, 1930                                    | + |
| P. ovata Gelei, 1954                                       | + |
| P. rouxii Kahl, 1926                                       | + |
| P. bifurca Foissner, 1999                                  | + |
| P. difficilis Foissner, 1981                               | + | + |

**Fam. Prorodontidae Ehrenberg, 1834**

| Prorodon pluvialis Dragesco, 1962                          | + | + | + | + |
| P. ovalis Dragesco, 1970                                    | + |
| P. africanus Dragesco, 1970                                 | + |
| P. ellipticus (Kahl, 1930)                                  | + |
| P. niveus Ehrenberg, 1834                                   | + | + | + |
| P. nuculeatus Penard, 1938                                  | + |
| P. laurenti Dragesco, 1966                                  | + | + | + | + |
| P. lucens Alekperov, 1985                                   | + | + | + |
| P. platyodon Blochmann, 1895                               | + | + | + |
| P. mimeticus Kahl, 1932                                    | + | + | + | + |

**Fam. Urotrichidae Small et Lynn, 1985**

| Rhagadostoma complotum Kahl, 1926                          | + |
| R. nudicaudatum Kahl, 1920                                  | + |
| Urotricha farcata Claparede et Lachman, 1859               | + | + |
| U. macrostoma Foissner, 1983                               | + |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|------------------------|
|                                                             | 1^  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
| 608 U. sphaerica Groliere, 1977                            | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 609 U. armata Kahl, 1927                                    | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 610 U. discolor Kahl, 1931                                  | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 611 U. baltica Czapik et Jordan, 1977                       | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 612 U. atypica Alekperov, 1993                             |     |     |     |     |     |     |     |     |     | +   |     |     |     |
| 613 U. turanica Alekperov, 1977                            | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 614 U. pelagica Kahl, 1932                                  |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| 615 U. valida Song et Wilbert, 1989                         |     | +   |     |     |     |     |     |     |     |     |     |     |     |
| 616 U. globosa Schewiakoff, 1892                           |     |     |     |     |     |     |     |     | +   |     |     |     |     |
| 617 U. coriassiana Song et Wilbert, 1989                    |     |     |     |     |     |     |     | +   |     |     |     |     |     |
| 618 U. apscheronica Alekperov, 1984                         | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 619 U. terecota Alekperov et Musaev, 1988                   |     |     |     |     |     |     |     |     |     |     | +   |     |     |
| 620 Longifragma oblique (Kahl, 1926)                        | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 621 L. gracilis Alekperov et Musaev, 1988                   |     |     |     |     |     |     |     |     |     |     |     | +   |     |

Class Plagiopylea Small et Lynn, 1985
Order Plagiopylida Jankowski, 1978
Fam. Plagiopylidae Schewiakoff, 1896

|                                                             | 1^  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
|-------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 622 Sonderia macrochilus Kahl, 1931                         |     |     | +   |     |     |     |     |     |     |     |     |     |     |
| 623 S. megalabiata Alekperov et Asadullayeva, 1996          |     |     |     |     | +   |     |     |     |     |     |     |     |     |
| 624 S. paralabiata Small et Lynn, 1985                      |     |     |     |     |     | +   |     |     |     |     |     |     |     |
| 625 S. sinuata Kahl, 1931                                   |     |     |     |     |     |     | +   |     |     |     |     |     |     |
| 626 Plagiopyla frontata Kahl, 1931                          |     |     |     |     |     |     |     | +   |     |     |     |     |     |
| 627 P. stenostoma Alekperov et Asadullayeva, 1999           |     |     |     |     |     |     |     |     |     | +   |     |     |     |
| 628 P. vestita Kahl, 1928                                   |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| 629 P. nasuta Stein, 1860                                   |     |     |     | +   |     |     |     |     |     |     |     |     |     |
| 630 P. ovata Kahl, 1931                                     |     |     |     |     |     |     |     |     |     |     |     |     | +   |

Class Oligohymenophora Puytorac et al., 1974
Order Peniculida Fauré-Fremiet in Corliss, 1956
Fam. Frontoniidae Kahl, 1926

|                                                             | 1^  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
|-------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 631 Frontonia macrostoma Dragesco, 1960                      |     | +   |     |     |     |     |     |     |     |     |     |     |     |
| 632 F. arenaria Kahl, 1933                                   | +   |     |     |     |     |     |     |     |     |     |     |     |     |
| 633 F. algivora Kahl, 1931                                   |     |     | +   |     |     |     |     |     |     |     |     |     |     |
| 634 F. marina Fabre-Domerque, 1891                          |     |     |     | +   |     |     |     |     |     |     |     |     |     |
| 635 F. leucas (Ehrenberg, 1833)                             |     |     |     |     |     |     | +   |     |     |     |     |     |     |
| 636 F. elliptica Beardsley, 1902                            |     |     |     |     |     |     |     | +   |     |     |     |     |     |
| 637 F. obtusa Song et Wilbert, 1989                         |     |     |     |     |     |     |     |     | +   |     |     |     |     |
| 638 F. salmasta Dragesco et Dragesco-Kerneis, 1986           |     |     |     |     |     |     |     |     |     | +   |     |     |     |
| 639 F. azerbajiana Alekperov, 1983                          |     |     |     |     |     |     |     |     |     |     | +   |     |     |
| 640 F. roquei Dragesco, 1960                                |     |     |     |     |     |     |     |     |     |     |     | +   |     |
| 641 Disematostoma butschlii Lauterborn, 1894                 |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| 642 D. invallatum Gelei, 1954                               |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 643 Wenrichia lahurica Alekperov, 1996                      |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| 644 Stokesia vernalis (Wang, 1928)                          |     |     |     |     |     |     |     |     |     |     |     |     |     |

Fam. Lembadionidae Jankowski in Corliss, 1979

|                                                             | 1^  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
|-------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 645 Lembadion bullinum Perty, 1849                           |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| 646 L. magnum (Stokes, 1887)                                 |     |     |     |     |     |     |     |     |     |     |     |     | +   |
| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|----------------------------------------------------------|------------------------|
|                                                          | 1*  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| L. lucens (Maskell, 1887)                                  | ++  |    |    |    |    |    |    |    |    |    |    |    |    |
| Uronemella turbo (Müller, 1786)                            | ++  |    |    |    |    |    |    |    |    |    |    |    |    |
| Paramecium caudatum Ehrenberg, 1832                       | +   | +  | +  | +  | +  | +  | +  | +  |    |    |    |    |    |
| P. jenningsi Diller et Earl, 1958                          | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| P. woodruffi Wenrich, 1928                                | +   | +  | +  | +  | +  | +  | +  | +  |    |    |    |    |    |
| P. calkinsi Woodruff, 1922                                 | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| P. multimeronucleatum Pueyrs et Mitchell, 1910             | +   | +  | +  | +  |    |    |    |    |    |    |    |    |    |
| P. bursaria (Ehrenberg, 1832)                              | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| P. putrinum Claparede et Lachmann, 1858                    | +   | +  | +  | +  | +  | +  | +  | +  |    |    |    |    |    |
| Tetrahymena pyriformis (Ehrenberg, 1830)                   | +   | +  | +  | +  | +  | +  | +  | +  |    |    |    |    |    |
| T. edaphoni Foissner, 1986                                 | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| Colpidium colpoda (Lusana, 1829)                           | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| C. singularare Vuxanovici, 1962                            | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| S. striatum Stokes, 1886                                  | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| Stegochilum fusiforme Schewiakoff, 1893                    | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| S. smalli Alekperov, 1993                                  | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| Glauxoma acintillans Ehrenberg, 1830                       | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| G. chattoni Corliss, 1959                                  | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| Epenardia myriophillii Corliss, 1971                       | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| E. atra Ehrenberg, 1838                                   | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. acuminata Ehrenberg, 1838                              | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. catenula Savoie, 1965                                  | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. flav Uma (Ehrenberg, 1838)                             | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. kahl Tucolesco, 1962                                   | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. minima Song et Wilbert, 1989                           | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. mugardi Savoie, 1962                                   | +   |    |    |    |    |    |    |    |    |    |    |    |    |
| O. oblonga Stein, 1860                                   |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| O. ovata Stokes, 1885                                    |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| O. pectans Mugard, 1948                                   |    | +  |    |    |    |    |    |    |    |    |    |    |    |
| O. viridis Penard, 1922                                   |    | +  |    |    |    |    |    |    |    |    |    |    |    |

*Table 1. (Continuation)*

Ilham Kh. Alekperov, Natalya Yu. Snegovaya and Elyana N. Tahirova
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1* | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 682 Loxocephalus luridus Eberhard, 1862                      | +  |   |   |   |   |   |   |   |   |   |   |   |   |
| 683 L. intermedius Kahl, 1928                                | +  | + |   |   |   | + |   |   |   |   |   |   |   |
| 684 Platynematum sociale (Penard, 1922)                       | +  | + |   |   |   |   | + |   |   |   |   |   |   |
| 685 P. hyalinum (Kahl, 1931)                                 | +  |   |   |   |   |   |   | + |   |   |   |   |   |
| 686 P. marinus (Kahl, 1933)                                  | +  | + | + | + |   | + |   |   |   |   |   |   |   |
| 687 P. denticulatum (Kahl, 1933)                             | +  | + |   |   |   |   |   |   | + | + |   |   |   |
| 688 Sathrophilus muscorum Kahl, 1931                          | +  |   |   |   |   |   |   |   |   |   | + |   | + |
| 689 S. granulatus Czapik, 1968                               | +  |   |   |   |   |   |   |   |   |   |   |   |   |
| 690 S. putrinus Kahl, 1926                                    | +  |   |   |   |   |   |   |   |   |   |   |   |   |
| 691 Cinetochilium marginale Ehrenberg, 1831                  | +  | + |   |   |   |   | + |   |   |   |   |   |   |
| 692 C. marinus Kahl, 1931                                    | +  | + |   |   |   |   |   |   |   |   |   |   |   |
| 693 C. impatiens Penard, 1922                                |    |   |   |   |   |   |   |   |   |   |   |   |   |
|                                                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Order Philasterida Small, 1967                              |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Fam. Cyclidiidae Ehrenberg, 1838                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 694 Cristigera vestita Kahl, 1928                            | +  |   |   |   |   |   |   |   |   |   |   |   |   |
| 695 C. phoenic Penard, 1922                                  | +  | + |   |   |   | + |   |   |   |   |   |   |   |
| 696 C. fusiformis Penard, 1922                               | +  | + |   |   |   |   | + |   |   |   |   |   |   |
| 697 C. media Kahl, 1928                                      | +  | + | + |   |   | + |   |   |   |   |   |   |   |
| 698 C. constricta Madsen,1931                                | +  |   |   |   |   |   |   |   |   |   |   |   |   |
| 699 Caspionella bergeri (Agamaliev, 1972)                    | +  | + |   |   |   |   |   |   |   |   |   |   |   |
| 700 Cyclidium citrullus Cohn, 1865                           | +  | + | + | + |   | + | + |   |   |   |   |   |   |
| 701 C. glaucoma Muller, 1786                                 | +  | + | + | + | + | + | + | + | + |   |   |   |
| 702 C. marinus Borrer, 1963                                  | +  | + |   |   |   |   |   |   |   |   |   |   |   |
| 703 C. borreri Small et Lynn, 1985                           | +  | + |   |   |   |   |   |   |   |   |   |   |   |
| 704 Protocycloidea terrein Alekperov, 1993                   | +  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Fam. Pseudocohnilembidae Evans et Thompson, 1964             |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 705 Pseudocohnilembus veisioli Alekperov et Musaev, 1988     | +  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Fam. Uronematidae Thompson, 1964                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 706 Homalogastra setosa Kahl, 1926                           | +  |   | + |   | + | + | + | + |   |   |   |   |
| 707 Uronema marinum Dujardin, 1841                           | +  | + | + | + | + | + | + | + | + |   |   |   |
| 708 U. nigricans (Müller, 1786)                              | +  | + | + | + | + | + | + | + | + | + |   |   |
| 709 U. elegans (Maupas, 1883)                                | +  | + | + | + | + | + | + | + |   |   |   |   |
| 710 U. acutum Buddenbrock, 1920                             | +  | + | + | + | + | + | + | + |   |   |   |   |
| 711 U. pardusi Foissner, 1971                                | +  | + |   |   |   |   |   |   |   |   |   |   |   |
|                                                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Fam. Azeridae Alekperov, 1985                               |    |   |   |   |   |   |   |   |   |   | + |   |   |
| 712 Azerella calva Alekperov, 1985                           | +  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Fam. Gymnocyclidiidae Alekperov, 2009                       |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 713 Gymnocyclidium naboriculatum Alekperov, 2009             | +  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                                            |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Order Parastomatida Jankowski, 2007                         |    |   |   |   |   |   |   |   |   |   |   |   |   |
| Fam. Pleuronematidae Kent, 1881                             |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 714 Pleuronema crassum Dujardin, 1841                        | +  |   |   |   |   |   |   |   |   |   |   |   |   |
| 715 P. coronatum Kent, 1881                                 | +  | + |   |   |   |   |   |   |   |   |   |   |   |
| 716 P. marinus Dujardin, 1841                               | +  | + | + | + |   |   |   |   |   |   |   |   |   |
| 717 P. oculata Dragesco,1960                                 | +  | + | + | + |   |   |   |   |   |   |   |   |   |
| 718 P. nana Tucolesco, 1962                                 | +  | + | + | + |   |   |   |   |   |   |   |   |   |
Table 1. (Continuation)

| Taxonomic composition of the Phylum Ciliophora Doflein, 1901 | Distribution by regions |
|-------------------------------------------------------------|-------------------------|
|                                                             | 1* 2 3 4 5 6 7 8 9 10 11 12 13 |

**Order Sessilida Kahl, 1933**

Fam. Epistylidae Kahl, 1933

| Species                        | Distribution |
|-------------------------------|--------------|
| Epistylis plicatilis Ehrenberg, 1830 | + + + + + + + + |
| E. coronata Nusch, 1970         | + +          |
| E. nympharum Engelmann, 1862    | + + + + + + |
| E. procumbens (Zacharias, 1897) | + + + + + + |
| E. rotatorium Kahl, 1935        | + + + + + + |
| E. anastatica (Linne, 1767)     | + + + + + + |
| E. cyclopi Banina, 1977         | + + + + + + |

Fam. Vorticellidae Ehrenberg, 1838

| Species                        | Distribution |
|-------------------------------|--------------|
| Vorticella chlorellata Stiller, 1940 | + + + + + + + + |
| V. microstoma Ehrenberg, 1830   | + + + + + + |
| V. similis Stokes, 1887         | + +          |
| V. spuripicta Song et Wilbert, 1889 | + + + + + + |
| V. alba Fromenteil, 1874        | + + + + + |
| V. chlorellata Stiller, 1940    | + +          |
| V. octava Stokes, 1885          | + + + ++ + + |
| Carchesium aselli Engelmann, 1862 | + + + + + + |
| C. brevistylum Stiller, 1941    | + + + + + + |
| C. prechti Banina, 1977         | + + + + + + |
| C. umbilicatum Stiller, 1941    | + + + + + + |
| C. steini Precht, 1935          | + + + + + + |
| C. wassenum Viljoen et Reinecke, 1988 | + + + + + + |

Fam. Zoothamniidae Sommer, 1951

| Species                        | Distribution |
|-------------------------------|--------------|
| Zoothamnium artuscula Ehrenberg, 1831 | + + + + + + + + |
| Z. alternans Claparede et Lachmann, 1859 | + + + + + + + + |
| Z. plumosum Wright, 1860       | + + + + + + |
| Z. kenti Leidy, 1874           | + + + + + + |
| Z. adamsi Stokes, 1885         | + + + + + + |
| Z. haplocaulis Stiller, 1953   | + + + + + + |
| Z. manrium Mesuschekowski, 1877 | + + + + + + |
| Z. carci Kent, 1881            | + + + + + + |
| Z. glesnicum Claparede et Lachmann, 1839 | + + + + + + |
| Z. triphilum Stiller, 1946     | + + + + + + |
| Z. cupiferum Stiller, 1986     | + + + + + + |
| Z. vernico Precht, 1935        | + + + + + + |
| Z. haplocaulis Stiller, 1953   | + + + + + + |
| Z. astacioides Shubernetzky, 1978 | + + + + + + |
| Z. balticum Biernacka, 1963    | + + + + + + |

Fam. Telotrochidiidae Foissner, 1978

| Species                        | Distribution |
|-------------------------------|--------------|
| Telotrochidium crateriforme (Muller, 1773) | + + + + + + + + |
| T. johanninae Fauré-Fremiet, 1950 | + + + + + + |
| T. cylindricum Foissner, 1978  | + + + + + + + |

* Note: 1 - Absheron Peninsula, 2 - North-Eastern Azerbaijan, 3 - Divichi firth (Agzybir Lake), 4 - Gizil-Agach Bay, 5 - Lenkoran coast of the Caspian Sea, 6 - Astara coast of the Caspian Sea, 7 - Estuary of the Kura River, 8 - Fresh waters and soils, South-Eastern Azerbaijan, 9 - Fresh waters and soils, the Greater Caucasus, 10 - Inland waters of the Kura River basin, 11 - Fresh waters and soils, North Azerbaijan, 12 - Fresh waters and soils, North-Western Azerbaijan, 13 - Fresh water reservoirs, Nakhichevan AR.
NOTES ON DISTRIBUTION AND OCCURRENCE OF FREE-LIVING CILIATES IN AZERBAIJAN

Fam. Trachelocercidae Kent, 1880

In Azerbaijan, all representatives of this family are found only in the Caspian psammon. Ten species representing 3 genera (Trachelocerca, Kovalevaia, and Trachelorahis) were found in the Caspian Sea. Trachelocerca species were found only in very fine sand on the Northern coast of Absheron. Two species of Kovalevaia (K. sulcata and K. teissieri) were observed in the littoral psammon of Sumgait coast of the Absheron Peninsula, as well as in silty sand of Davachi frith. Most species of Trachelorahis (T. conformis, T. binucleata, T. oligostriata, T. discolor) were observed in Lankaran and Astara psammon coast of the South Caspian (South-Eastern Azerbaijan).

Small number of specimens of T. nivea and T. gracilis several times were observed in the psammon of the Northern coast of the Absheron Peninsula.

Fam. Kentrophoridae Jankowski, 1980

Representatives of a single genus Kentrophoros in Azerbaijan were found mainly in the psammon of the Southern and Middle Caspian. All six registered species of this genus were found on the coast of Astara and Lankaran (South Caspian). Moreover, K. latus and K. uninucleatus were also observed in the psammon of the Southern coast of the Absheron Peninsula.

The species K. trichocistis, K. faurei, and K. flavus were also observed in the desalted Davachi frith and Gizil-Agach Bay of the Caspian Sea.

The smallest and rare K. canalis were always found only in small number of specimens in sea baths on the coastal rocks of the Northern Absheron.

All representatives of Kentrophoros prefer a biotope of fine sand having a high content of organic matter. Due to symbiosis with numerous sulfur bacteria that settle on the dorsal side of ciliates, Kentrophoros is adapted to life in the fine sand with high organic content and a low content of dissolved oxygen in the water.

Fam. Loxodidae Bütschli, 1889

In Azerbaijan, six representatives of the genus Loxodes are widely spread mainly in the freshwater benthos, especially on black silt, practically in all territories of the republic. The only exception is the giant L. rex, first described by Dragesco (1970) from the Southern and Middle Caspian.

Fig. 1. Regions of Azerbaijan where the biodiversity investigations of the free-living ciliates and testate amoebae were conducted. 1 - Absheron Peninsula, 2 - North-Eastern Azerbaijan, 3 - Divichi firth (Agzybir Lake), 4 - Gizil-Agach Bay, 5 - Lenkoran coast of the Caspian Sea, 6 - Astara coast of the Caspian Sea, 7 - Estuary of the Kura River, 8 - Fresh waters and soils, South-Eastern Azerbaijan, 9 - Fresh waters and soils, Greater Caucasus, 10 - Inland waters of the Kura River basin, 11 - Fresh waters and soils, North Azerbaijan, 12 - Fresh waters and soils, North-Western Azerbaijan, 13 - Freshwater reservoir Nakhichevan Autonomous Republic.
fresh waters of Africa which has not been observed yet in the other regions of the world except for Azerbaijan.

In Azerbaijan these species were observed only for a few times during the summer and only in fresh waters of Nakhichevan.

Other species (L. kahli, L. vorax, L. penardi, L. striatus and L. rostrum) are quite often observed in freshwater silt benthic communities, especially black and sapropelic silt, the bottoms of eutrophic water bodies of the Kura River basin, and fresh waters of the Northern East Azerbaijan. Only L. striatus was observed in fresh waters of the Northern Azerbaijan.

**Fam. Cryptopharyngidae Jankowski, 1980**

Three representatives of the genus Cryptopharynx and a single species of the genus Apocryptopharynx from this family are observed in Azerbaijan. These are very interesting eurybiont ciliates having a wide ecological plasticity.

Preferring thickets of red algae, C. multinucleatum and C. setigerus are often found in marine benthos, on the littoral of the Northern coast of the Absheron Peninsula, as well as in the psammon of North-Eastern Azerbaijan. Only C. setigerus was observed in fresh waters of the Northern Azerbaijan.

**Fam. Geleiidae Foissner, 1998 nec Kahl, 1933**

Geleiidae are very specific marine ciliates. In Azerbaijan, 6 species of the genus Geleia were found in the psammon and periphyton of the Astara and Lankaran coasts of the South Caspian.

Two species (G. fossata and G. simplex) were frequently observed in the sea beds of the Northern coast of Absheron in Bilgah, but G. major and G. nigriceps were observed in the desalinated estuary of the Kura River.

The rarest species were G. luci and G. acuta, observed in low number of specimens, only a few times in the early autumn, in the psammon of the North coast of the Absheron Peninsula.

**Fam. Aveliidae Dragesco, 1999**

These are big vermiform and extremely rare marine ciliates in our region. Two species of the genus Avelia (Avelia gigas, A. arcachonense) were observed in the periphyton of the sea rocks in the South and Middle Caspian in Azerbaijan.

**Fam. Blepharismidae Jankowski in Small et Lynn, 1985**

Representatives of this family are commonly met in marine and fresh waters of Azerbaijan. Altogether 9 species have been found, one of them belonging to the genus Anigsteinia (A. salinara) is frequently found in the periphyton and benthos of the entire Azerbaijan sector of the Caspian Sea.

The other 8 species belong to the genus Blepharisma, representatives of which were observed both in the desalinated sea periphyton of the Davachi frith (B. undulans, B. tardum) and in the Caspian psammon of North-Eastern Azerbaijan (B. hyalinum, B. dileptus, B. falcatum, B. dawsoni).

Two species (B. vestitum and B. coerulae) were observed in fresh waters of the Kura River reservoirs, as well as in fresh waters of North-Western Azerbaijan, near the state border with Georgia.

**Fam. Spirostomatidae Stein, 1867**

In Azerbaijan, this family is represented only by the genus Spirostomum, three species of which are found on the territory of the republic. It should be noted that although all Spirostomum species are considered as inhabitants of fresh waters, nevertheless, species of this genus were also found in the Caspian Sea waters by S. Veisig (1940), who described, e.g., S. ambiguum from the Baku Bay.

These species were also found in Gizil-Agach Bay and on the Astara coast of the Caspian Sea. In addition, S. minus and S. loxodes were observed in the freshwater reservoirs of the Kura River basin, in the Davachi frith, in the reservoirs of the Nakhichevan Autonomous Republic and in the North, as well as in North-Western Azerbaijan.

**Fam. Climacostomatidae Repak, 1972**

This family in Azerbaijan is represented by two species of the genus Climacostomum (C. virens, C. minimum) and the monotypic genus Fabrea (F. salina).

The first genus is quite often found in freshwater silt bottoms of South-Eastern Azerbaijan and the inland waters of the Kura River basin. Frequently, the presence of Climacostomum is discovered in
fouling and near-bottom plankton of fresh waters in the reservoirs of the Northern and North-Western Azerbaijan, as well as in the phytociliocenoses of small eutrophic forest ponds of the Great Caucasus.

Several times, the _Climacostomum_ species were observed as facultative pedobionts in forest soils of the mountain forests of Lerik and Talish area of the South-Eastern Azerbaijan, where they appear during the periods of prolonged atmospheric precipitation, when a lot of common freshwater species of ciliates can be found in the forest litter.

Despite the fact that the second representative of the family _Climacostomatidae_ of genus _Fabrea_ – _F. salina_ is presented in the references as a widespread species, it was observed only in the hyperhaline waters of the salty lakes of the Absheron Peninsula and in the drying sea baths of the supralittoral of the Caspian Sea.

**Fam. Condylostomatidae Kahl in Dofflein et Reichenow, 1927**

Representatives of this family are commonly observed in marine and fresh waters of Azerbaijan and belong to 2 genera – _Linostomatella_ ( _L. vorticella_), a well-known big planktonic species that sometimes multiply in the plankton of fresh and brackish water bodies, especially during the phytoplankton blooms, and _Condylostoma_ – 9 species that are commonly met both in fresh and marine waters.

A representative of the first genus, _L. vorticella_, is observed in the Great Caucasus inland water plankton, as well as in the freshened Davachi firth and the Gizil-Agach Bay of the Caspian Sea. According to our observations, _Condylostoma_ species prefer near-bottom plankton communities rather than benthos and they are frequently observed in the coastal phytociliocenoses of the small shallow bays of the Caspian Sea ( _C. fieldi, C. granulosum, C. magnum_ and _C. spatuosum_) along the entire Azerbaijan sector of the Caspian Sea.

**Fam. Stentoridae Carus, 1863**

_Stentoridae_ are the ciliates of characteristic shape and large size, some species secrete in the caudal end of a transparent mucous house encrusted with mineral detritus particles.

9 species are discovered in Azerbaijan; they are living mainly in the freshwater benthos, almost throughout the territory of the country. In the Caspian Sea, _S. coeruleus, S. mulleri_ and _S. gallinulus_ are observed in the desalinated delta of the Kura River.

_S. roeseli, S. globator, S. gracilis_ and _S. viridis_ are quite common in plankton, periphyton and phytociliocenoses of fresh water reservoirs of the South-Eastern Azerbaijan. Two species, _S. polymorphus_ and _S. amethystinus_, are often found in the freshwater plankton of the reservoirs of North-Western Azerbaijan and the Great Caucasus.

**Fam. Phacodiniidae Corliss, 1979**

In Azerbaijan, a representative of the genus _Phacodinium_ ( _P. muscorum_ ) was found living in soils, mainly in the forest zones. It was also observed in wet mosses and tree hollows. Being distributed in the forests of the North-Eastern and South-Eastern Azerbaijan, it was also observed in the forests of the Great Caucasus, both in soils and wet mosses.

**Fam. Amphisiellidae Jankowski, 1979**

The representatives of 5 genera belonging to this family were observed in Azerbaijan; they are: _Amphisiella_ (6 species), _Hemiamphisiella_, _Paraamphisiella_ and _Paragastrostyla_ (1 species in each), and _Pseudouroleptus_ (2 species).

The species _A. annulata, A. turanica_ and _A. millei_ were observed in periphyton and silty sand of the Absheron Peninsula littoral. The more rare species, _A. vitiphila_ and _A. marioni_, were discovered in desalinated parts of the Caspian Sea – Davachi firth, Gizil-Agach Bay and delta of the Kura River.

Ciliates from the genus _Hemiamphisiella_ ( _H. terricola_ ) and _Paraamphisiella_ ( _P. acuta_ ) were found in the soils of the Lankaran citrus plants plantations of the South-Eastern Azerbaijan, melons agrocenoses on the Absheron Peninsula, as well as in meadow and forest soils of Ismayilli and Pirguli mountain State Reserves (the Great Caucasus).

Three other pedobionts, _Paragastrostyla lanceolata, Pseudouroleptus caudatus_ and _P. terrestris_, were also found in soil biotopes with high content of organic matters: in cultivated soils of household plots in the Absheron Peninsula and only a few specimens were observed in early spring in fresh waters of the Northern and North-Western Azerbaijan.

**Fam. Kahliellidae Tuffrau, 1979**

In Azerbaijan, these primitive hypotrichs are observed in all investigated biotopes – marine and fresh waters, as well as soils. Nevertheless, six species
of a single genus *Kahlilia* are quite rare and occur in small numbers.

The majority of *Kahlilia* records was observed in the Absheron, including soils (*K. costata K. bacilliformis*), as well as freshwater reservoirs of the Nakhchivan AR (*K. spirostoma, K. microstoma*), the South-Eastern Azerbaijan, and in fresh waters and soils of the Lankaran natural area.

The most common *K. acrobates* was observed in marine baths on the Caspian littoral of North-Eastern Azerbaijan, near the state border with Russia.

**Fam. Oxytrichidae Ehrenberg, 1838**

In Azerbaijan, this big family is represented by 8 genera, of which 2 species are accounted for the genus *Tachysoma*, 6 — *Stylonychia*, 4 — *Histriculos*, 1 — *Sterkiella*, 3 — *Paraurostyla*, 13 — *Oxytricha*, 1 — *Wallaskia*, and 3 species of *Gonostomum*.

The genus *Tachysoma* includes two species (*T. rigescens* and *T. ovata*) that were found in the psammon of the Northern coast of the Absheron Peninsula and in the salty inland waters of the Absheron.

Most of the widespread representatives of the genera *Stylonychia* and *Histriculos* were observed only in aquatic biotopes, both marine and freshwater. The only exception was *S. quadrinucleata*, first found and described in cultivated soils of the Absheron; however, they were also occasionally found in the periphyton of fresh water bodies in this region.

**Fam. Keronidae Dujardin, 1841**

In Azerbaijan, 3 genera of this family were observed. These are *Kerona* (1 species), *Paraholosticha* (3 species) and *Keronopsis* (1 species).

The genus *Kerona* is very specific and was registered only on the epithelium of freshwater *Hydra*. This genus is rather rare; it observed on *Hydra* in fresh waters of several Nagorno–Karabakh reservoirs and surrounding areas (Sarsang water reservoir, Kendalanchay 1 and 2 water reservoirs), as well as Goy-Gel Lake and fresh waters of the Great Caucasus.

Representatives of *Paraholosticha* are frequently found in damp mosses in the forest zone of the North-Eastern and South-Eastern regions of Azerbaijan. Several times *P. polychaeta* was observed in fresh waters on the Absheron.

The third genus, *Keronopsis* is widely spread throughout the littoral of the Caspian Sea — from the state border with Iran in the south to the state border with Russia in the north. It also occurs in fresh waters, especially on the surface of aquatic plants.

**Fam. Pseudokeronopsidae Borror et Wichlow, 1983**

This family is represented in Azerbaijan by only one genus *Pseudokeronopsis* with 4 species. The most common of them are *P. rubra* and *P. flava* discovered on the coast Azerbaijani sector of Caspian Sea — in the benthos of the Absheron coast, on the silty soils of the Davachi frith, as well as on the littoral of the Astara and Lankaran coast of the South Caspian.

Species *P. carnea* and *P. sepetibensis* are particularly well-developed in sea baths on the rocks in the splash zone of the North Absheron. *P. rubra* was sometimes observed in the salty waters of the inland reservoirs of the Absheron.

**Fam. Bakuellidae Jankowski, 1979**

Most species of this family, including the *Bakuella*, were first found in Azerbaijan (Agamaliev, Alekperov, 1976). Representatives of the genus *Bakuella* (3 species) are observed both in marine (*B. crenata* and *B. marina*) and freshwater on the Absheron (*B. crenata* and *B. polycirrata*).

The single representative of the genus *Meta-bakuella* (Alekperov, Musaev, 1988) was originally described from the soils of the Absheron; however, during the subsequent studies it was found also in fresh waters of the Kura River basin.

The genus *Pseudobakuella* (Alekperov, 1992) includes 2 species observed in fresh waters of the reservoirs of the Lower Kura River and the North-Eastern Azerbaijan.

The revision of the Bakuellidae family was carried out by different authors in the same year (Alekperov, 1992; Song, 1992). The most recent revision provided a more precise allocation of the new taxa (Alekperov, 2006).

**Fam. Pseudourostylelidae Jankowski, 1979**

Only 3 species of the genus *Pseudourostylela* are known in Azerbaijan. Of these, *P. cristata* is common
in the freshwater benthos. It is found throughout the territory of the Azerbaijan.

The next species, *P. laevis* was found in the marine periphyton on the coastal rocks of the Northern coast of Absheron, as well as in the waters of the desalinated Davachi frith (now Lake Aghzibir).

The third species, *P. franszi* was observed in the meadow and forest soils of the Ismayilli State Reserve in the Great Caucasus.

**Fam Urostylidae Bütschli, 1889**

This is a large family, of which representatives of 8 genera were found in Azerbaijan. These are *Urostyla* (7 species), *Metaurostyla* (2 species), *Birojimia* (1 species), *Pseudoamphisiesta* (1 species), *Paruroleptus* (2 species), *Holosticha* (3 species), *Anteholosticha* (7 species) and *Trichototaxis* (3 species).

Representatives of the genus *Urostyla* are common in the freshwater benthos. In Azerbaijan, they are widespread in fresh waters of the whole Republic. Here, this genus is represented by 7 species: two species (*Urostyla grandis* and *U. latissima*) are observed in the freshwater benthos of the reservoirs of the Nakhichevan Autonomous Republic while *U. marina*, *U. grandis* and *U. viridis* were found in fresh water reservoirs as well as in sea waters of small bays of the Caspian coast of the North-Eastern Azerbaijan.

Although species of the genus *Metaurostyla* (*M. polonica* and *M. raikovi*) are frequently found, they seldom reach high density; usually, just a few specimens of these species are found in eutrophic reservoirs of the Kura River basin.

A single species of the genus *Birojimia* (*B. territoria*) was registered only in the soil biotopes of the forest zones of South-Eastern and North-Eastern Azerbaijan. During the entire research period, it was found only 3 times in the Baku parks’ soils.

In Azerbaijan the representative of *Pseudoamphisiesta* (*P. alveolata*) was observed only in the desalted Kura River delta and the similarly desalinated waters of Davachi frith.

The genus *Paruroleptus* is represented by two species — *P. gallina*, observed in marine baths in the splash zone on the rocks of the Northern Absheron, and *P. notabilis* which was frequently found in fresh waters of the Kura River basin, overgrown with aquatic plants.

In Azerbaijan the genus *Holosticha* is represented by 3 species observed in both marine (*H. foissneri*) and fresh waters (*H. heterofoissneri*, *H. pullaster*). *H. pullaster* was repeatedly observed in the meadow soils of Ismayilli State Reserve (the Great Caucasus).

A closely related genus, *Anteholosticha*, is represented by 7 species found in marine (*A. randani*, *A. manca* and *A. grisea*) and fresh waters (*A. monilata*, *A. adami* and *A. pulchra*), as well as in soil biotopes (*A. musicola*) of broad-leaved forests of South-Eastern and North-Eastern Azerbaijan. All 7 species are observed on the entire territory of the country but not in the Nakhichevan AR.

The genus *Trichototaxis* includes 3 species of which *T. crassus* and *T. velox* prefer marine benthos of the Lankanar and Astara coasts of the South Caspian, although they are also registered in the periphyton of the coastal rocks of the Middle Caspian on the Absheron. The third species, *T. pulchra* is observed in the forest litter of broad-leaved forests of North-Eastern Azerbaijan.

**Fam. Kiitrichidae Nozawa, 1941**

Only one monotypic genus, *Musajevella*, from this family was found and first described in fresh waters of South-Eastern Azerbaijan (Alekperov, 1984c). The species *Musajevella minima* was found on silty bottom with high content of organic matters. These rare ciliates can only be found in small number of specimens at the beginning of summer.

Later these ciliates were also found in brackish waters of Davachi frith.

**Fam. Euplotidae Ehrenberg, 1838**

In Azerbaijan, this family is represented by a big genus *Euplotes*. A number of *Euplotes* species are widely spread and found in both marine and fresh water bodies. During the period of intense precipitation when moisture content of meadow and forest soils increases greatly, some species (*E. patella*, *E. gracilis*, *E. minuta*) can be observed on the surface layers of the soil and forest litter. They are found there only in the period of maximum soil moisture, as facultative species of the ciliates soil community.

In total, 25 species of this genus were found widely spread in all freshwater reservoirs and along the entire Azerbaijan sector of the Caspian Sea.

**Fam. Aspidiscidae Ehrenberg, 1838**

Fifteen species of the genus *Aspidisca* were discovered in Azerbaijan. Most of them are ordinary inhabitants of the marine benthos and periphyton of the Caspian coastal rocks. At the same time, several
species (*A. fusca, A. aculeata, A. cicada, A. steini*) are repeatedly observed in the freshwater benthos, periphyton and in the ciliate communities of freshwater phyto cilocienoses. Two species from this genus were described in Azerbaijan for the first time: *A. caspica* in the Caspian Sea (Agamaliev, 1967) and *A. poljanski* — in fresh waters (Alekperov, 1985).

**Fam. Uronychiidae Jankowski, 1975**

In Azerbaijan, this family is represented by two genera: *Diophrys* (5 species) and *Uronychia* (8 species). Representatives of both genera are typical marine inhabitants. These ciliates are found in benthos, especially on silty sand, and periphyton of coastal rocks along the entire coast of the Azerbaijani sector of the Caspian Sea. At the same time, some species of Diophrys, first described in Azerbaijan (Alekperov, 1984d), were observed in fresh waters on the Absheron (*D. multicirratus, D. polycirratus*).

Meanwhile, it is important to mention that the species *Uronychia invicta*, first described in Azerbaijan (Alekperov, 1985), is the single representative of the genus *Uronychia* found in fresh waters of the Khanbulanchay reservoir in the South-Eastern Azerbaijan (Alekperov, 1985).

It should be also noted that this species demonstrates pronounced morphological differences from all other species of the genus *Uronychia*. Namely, it has a specific fine argyme that covers all surfaces on the ventral and dorsal sides. In our opinion, this species is a marine relict in the freshwater fauna of the Caucasus.

**Fam. Halteriidae Claparede et Lachmann, 1858**

Representatives of this family are mainly inhabitants of plankton communities. In Azerbaijan, 2 genera are observed: *Halteria* (6 species) and a closely related genus *Pelagohalteria* (2 species). *Halteria* species are observed in all investigated fresh water bodies of Azerbaijan.

The most common are *H. grandinella, H. ovisformis* and *H. maxima* that form a regular component of the near-bottom plankton of fresh water bodies. The other three species are usually rare; they can be found more frequently only in a certain season.

For example, *H. tamari* was always observed in small number of specimens in freshwater reservoirs of the Nakhichevan Autonomous Republic, and *H. geleiana* and *H. bifurcata* were found only in the mesosaprobic fresh waters of South-Eastern Azerbaijan.

In the Caspian Sea, representatives of the genus *Pelagohalteria* (*P. viridis, P. cirrifera*) along with *H. grandinella* occur in the Kura River delta at salinities 4-7 ‰.

**Fam. Strombidiidae Fauré-Fremiet, 1970**

At present, this family is replenished by a number of newly allocated genera. Representatives of 8 genera were found in Azerbaijan: *Omegastrombidium* (1 species), *Arcostrombidium* (1 species), *Heterostrombidium* (3 species), *Limnostrombidium* (1 species), *Novistrombidium* (1 species), *Spirostrombidium* (2 species), *Pelagostrombidium* (2 species), and *Strombidium* (14 species).

Most of the 25 species of these genera occur both in fresh water and in the Caspian Sea. It should be noted that some species (S. nabranicum, *S. apsheronicum, S. caspicum, S. obtusum*) during the whole time span of our research were observed only in the Caspian plankton. However, some species, being usual components of freshwater plankton communities, were met in desalinated areas of the Caspian Sea — Aghzibir Lake (the former Davachi firth), Gizil-Agach Bay and the Kura River Delta, where the salinity does not exceed 4-7 ‰. These include *Arcostrombidium grande, Spirostrombidium coronatum* and *Strombidium kahl*.

Despite the general acceptance of this group of ciliates as plankton inhabitants, the observations indicate that many of these species preferably occur either in the near-bottom water layer (i.e. their belonging to the plankton community is rather conventional), or they are the components of coastal phytoplankton communities.

**Fam. Strombidinopsidae Small et Lynn, 1985**

Along with the marine species such as *Strombidinopsis elongata* and *S. elegans*, five other species of this genus, including *S. azerbaijanica* described for the first time in the Caspian Sea (Alekperov and Asadullayeva, 1997), were found in Azerbaijan.

Two other representatives of this family — *S. claparedi* and *S. spinifera* — were met only a few times in the desalinated waters of the Davachi firth as well as in the Gizil-Agach Bay of the Caspian Sea.

**Fam. Strobilidiiidae Kahl in Doflein et Reichenow, 1929**

In Azerbaijan, this family is represented by three genera — *Strobilium* with three species (*S. caudatum,
S. conicum, S. marinum), Rimostrombi-dium with two species (R. humile and R. velox), and Pelagostrombi-dium with two species (P. neptunii and P. spirale).

Representatives of the first two genera were observed both in fresh and sea waters. Of these, S. humile and S. marinum were found in the sea baths on the littoral of the North Absheron in the plankton of the coastal zone of the North-Eastern and South-Eastern Azerbaijan, as well as in the phytociliocenoses communities of Davachi firth.

Three other species were found in fresh waters of the reservoirs of the Kura River basin, Northern and North-Western Azerbaijan, as well as in fresh waters of the Nakhichevan AR.

Representatives of the genus Pelagostrombidium were observed only in the pelagic plankton of the South Caspian in Lankaran and Astara coasts of the Caspian Sea. Both representatives of this genus are extremely rare and usually occur in plankton communities in late autumn.

Fam. Codonellidae Kent, 1881

Two species of the genus Codonella (C. cratera and C. relicta) and a single representative of the genus Tinlinnopsis (T. cilindrata) belong to this family in the fauna of Azerbaijan. All these ciliates are found mainly in the freshwater plankton of the Nakhichevan AR fresh water bodies, in the reservoirs of South-Eastern Azerbaijan and in the reservoirs established on the Kura River (Shamkir, Mingechaur, Varvara and others).

Fam. Metopidae Kahl, 1927

In Azerbaijan, this family is represented only by two genera – Metopus with 9 species and Brachonella with 5 species. Those are ordinary representatives of the freshwater benthos that prefer black silt and sapropel.

Some representatives of this family (M. caucasicus, M. fusoides and Brachonella mitriformis), described for the first time in Azerbaijan, were found in the fishponds of the Lower Kura (Alekperov, 1984), but subsequent studies unveiled their wide prevalence in the fresh waters of the Kura and South-Eastern Azerbaijan. Like the other members of the saprobiont complex, these ciliates are found in eutrophicated waters on black or sapropel silts.

Fam. Caenomorphidae Poche, 1913

In Azerbaijan, this family is represented by only three species of the genus Caenomorpha. Among those, C. medusula and C. lauterborni are quite common on silty bottoms rich in organic matter, in fresh waters of the Kura River reservoir and the desalinated Davachi firth.

However, the third species, C. levanderi is observed extremely rarely, usually in the first half of summer, on the black silts of the Lower Kura inland waters.

Fam. Epalxellidae Corliss, 1960

In Azerbaijan, this family is represented by 3 genera: Pelodinium – 1 species, Epalxella – 5 species, and Saprodinium – also 5 species. According to the habitat conditions, they are also saprobionts like the members of the previous two families.

They were observed in the abandoned fish ponds of the sturgeon fishery (Lower Kura River), in summer in brackish waters of Davachi firth on black silts, as well as extremely rarely – in lentic waters of the North-Eastern Azerbaijan. In the Caspian Sea, additionally to the desalinated Davachi firth, these species were observed also in the Small Gizil-Agach Bay. Only Saprodinium spinigerum was observed twice in the reservoirs of the Nakhichevan AR.

Fam. Mylestomatidae Kahl in Doflein et Reichenow, 1929

In Azerbaijan, 4 species of a single representative of this family — the genus Mylestoma, are extremely rare.

During our long-terms studies (more than 45 years), M. bipartitum and M. flagellatum were observed only 7 times in the sea baths of the South Caspian among rotting algae. The other two species (M. uncinatus and M. pusillum) were also extremely rare: we observed only several specimens in the Gizil-Agach Bay of the Caspian Sea.

Fam. Fuscheriidae Foissner, Agatha et Berger, 2002

Representatives of this family are typical inhabitants of soils, although they are also found in fresh water bodies.

Only two representatives of the genus Fuscheria — F. nodosa and F. terricola were found in the soils of the Absheron Peninsula, the soils of the mountain forests of Lerik (South-Eastern Azerbaijan) and the Ismailli State Reserve (Great Caucasus). In addition, only F. nodosa was found in the fresh waters of the Absheron and the Kura River basin.
Fam. Encheliodontidae Foissner, Agatha et Berger, 2002

In Azerbaijan, only the genus *Enchelyodon* with three species can be observed — *E. armatides*, *E. nodosus* and *E. tratzi*. The first two species are found quite frequently in meadow and forest soils of the South-Eastern Azerbaijan, as well as in the Great Caucasus mountain forest soils.

The third species (*E. tratzi*) is extremely rare in fresh waters of the temporary water bodies of the North-Western Azerbaijan.

Fam. Enchelyidae Ehrenberg, 1838

Representatives of 3 genera belonging to this family were found in Azerbaijan. Of these, 5 species belong to the genus *Enchelys*, one species — to *Papillorhabdos* and four species — to *Lagynophrya*. *Enchelys* species are found in many fresh water bodies of the Republic — in the Kura River basin, inland waters of the Nakhiachevan Autonomous Republic and others.

*E. lenkoranica*, described in Azerbaijan (Alekperov, 1984), is observed only in fresh waters of the South-Eastern Azerbaijan.

*E. marina* and *E. pectinata* occurred in the Davachi firth and on the littoral of the Middle Caspian and the North-Eastern coast near the state border between Azerbaijan and Russia. *E. simplex* was found in the soil biotopes of the Absheron. Only *Papillorhabdos multinucleatus* was observed several times by small number of specimens in the reservoirs of the Lower part of the Kura River.

Representatives of the genus *Lagynophrya* were observed in both marine and fresh waters. In the Caspian, *L. halophila* and *L. maxima* were found on the Astara coast of the South Caspian and in the salt lakes of the Absheron.

*L. mutans* can be found in almost all fresh waters of the Kura River, as well as a facultative pelobiont in the forest litter of the deciduous forests of the North-Eastern Azerbaijan. In the inland waters of the Nakhiachevan Autonomous Republic, only *Lagynophrya pumilio* was observed in low number of specimens in the early spring.

Fam. Trachelophyllidae Kent, 1882

Only 6 species of this family belonging to the genus *Trachelophyllium* are observed in Azerbaijan. Most of these ciliates were recorded in meadow and forest soils of Talish mountain forests (South-Eastern Azerbaijan), only two species (*T. apiculatum* and *T. attenuatum*) were found in temporary reservoirs and soils of the Absheron Peninsula, as well as in meadow and forest soils of mountain state reserves of the Great Caucasus.

*T. clavatum* was observed in fresh waters of the North-Eastern Azerbaijan and in reservoirs of the Great Caucasus and the Sarsang reservoir (Nagorno-Karabakh), and *T. triangularum* and *T. antennatum* were found in the reservoirs of the Kura River basin.

Fam. Lacrymariidae Fromentel, 1876

Only three genera from this family are found in Azerbaijan: *Lacrymaria* (12 species), *Pelagolacrymaria* (2 species) and *Phialina* (7 species). Some representatives of the first genus (*L. olor*, *L. marina*, *L. issykkulica*, *L. delmarii*, *L. minuta* and *L. khali*) were observed in the littoral of the whole Azerbaijan sector of the Caspian Sea. Additionally, *L. olor* was frequently found in the fresh waters of the Absheron, together with the other, mainly freshwater species *L. pulchra*, *L. lagenula*, *L. clavarioides* and *L. cucumis* (the latter species was transferred to the genus *Lagynus*, validity of which is not sufficiently substantiated yet).

The latter four species of ciliates mentioned above were observed in fresh waters of the Nakhiachevan AR, the inland waters of the Great Caucasus, and in addition, as facultative pedobionts, they are quite often in meadow and forest soils of the mountain forests of the Northern and North-Eastern Azerbaijan along the state borders with Russia and Georgia.

The rarest species is *Lacrymaria spiralis*; these ciliates were found only in the benthos of the North-Eastern coast of Azerbaijan, not far from the state border with Russia, and on algal silts in Davachi firth.

Two representatives of planktonic genus *Pelagolacrymaria* (*P. moserae* and *P. rostrata*) were found in fresh waters of the reservoirs of the Kura River basin and the desalinated Davachi firth.

Seven species belonging to the genus *Phialina* were observed both in the marine waters (*P. rostrata*, *P. conifera*, *P. ovata*) in the psammon of the Astara and Lankaran coasts of the Caspian Sea, and in fresh waters (*P. pupula*, *P. vermicularis*, *P. vertens*, *P. decussata*) of the Kura River basin and North-Western Azerbaijan.
Representatives of the genus Phialina have high ecological plasticity and are often found not only in water but also in soil biotopes of meadow and forest soils of the Great Caucasus (P. pupula, P. vermicularis, P. macrostoma and P. ovata).

Fam. Spathidiidae Kahl, 1929

Ciliates belonging to this family are widespread in Azerbaijan and represented by 6 genera: Spathidium (12 species), Supraspathidium (7 species), Epispathidium (2 species), Arcuospathidium (2 species), Protospathidium (2 species) and Perispira (3 species).

Representatives of the genus Spathidium are widespread in fresh waters and soils of Azerbaijan. Among those, S. procerum, S. chlorelligerum, S. fossicola and S. deforme were mainly found in the soils of the North-Western Azerbaijan. The other species are mainly found in fresh waters of the Lower Kura, in fishponds, as well as in freshwater basins of the Nakhichevan Autonomous Republic. Representatives of the genus Supraspathidium are mostly inhabitants of meadow and forest soils, especially many of them dwell in the forest litter. They are observed in the mountain forest soils of the Great Caucasus and Talysh.

Two species of Arcuospathidium (A. cultriforme, A. novaki) were found in the highland soils of the Ismayilli state reserve in the rhizosphere of broad-leaved oak, as well as in soils of citrus plantations in the South-Eastern Azerbaijan.

Representatives of the genus Protospathidium (P. muscicola and P. terricola) were found both in aquatic and soil biotopes. P. muscicola can be found in fresh waters of the reservoirs of the Kura River basin, as well as in the reservoirs of the Northern and North-Western Azerbaijan. The second species, P. terricola is a typical pedobiont found in the soils of broad-leaved forests of the North-Western Azerbaijan, forest and meadow soils of the Great Caucasus and mountain forest soils of Talish and Lerik (South-Eastern Azerbaijan).

The genus Perispira is represented by 3 species in Azerbaijan. Of these, P. ovum is the most common in the benthic ciliate communities of fresh waters on silty bottoms of eutrophic water bodies.

Two other species of this genus (P. ovum, P. strephostoma) were also found in abandoned fish ponds of the Lower Kura fish farms, in many eutrophic reservoirs of the Kura River basin, in North-Western and North-Eastern Azerbaijan, and in desalinated Davachi firth of the Middle Caspian. P. oligospora occurs less often and is absent in the Davachi firth; it was observed also in the desalinated Gizil-Agach Bay of the Caspian Sea.

Fam. Didiniidae Poche, 1913

Two genera belonging to this family are observed in Azerbaijan. The genus Monodinium includes 4 species (M. balbianii, M. perrieri, M. alveolatum and M. chlorelligerum). All of them are typical representatives of freshwater plankton ciliate communities, though at certain times they were observed in the low salinity zones of the Caspian Sea — Davachi firth, Gizil-Agach Bay and in the Kura River delta.

These ciliates are widely spread in all freshwater bodies, including the Absheron (M. balbianii, M. perrieri), waters of the Kura River basin, fresh waters of the Northern Azerbaijan (M. balbianii) and fresh waters of the Nakhichevan Autonomous Republic. It should be noted that, besides plankton communities, the species M. alveolatum and M. chlorelligerum are often found in phytociliocenoses in the coastal zones of fresh water bodies.

The second genus, Didinium is represented by three species (D. nasutum, D. chlorelligerum, D. gargantua). The first two species are ordinary inhabitants of most plankton communities in Azerbaijan freshwater basins. D. nasutum was occasionally observed as a facultative pedobiont in forest soils of broad-leaved forests of the North-Eastern Azerbaijan and in soils of citrus plants plantations in the South-Eastern Azerbaijan.

The third species, D. gargantua was observed in the sea baths at the rocky littoral of the South and Middle Caspian Sea.

Fam. Tracheliidae Ehrenberg, 1838

In Azerbaijan, this ciliate family is represented by 6 genera. The genus Dileptus includes 4 species, three of which — D. micronatus, D. breviprobscos and D. cygnus inhabit mostly fresh waters, frequently occurring on silty bottom and in phytociliocenoses of eutrophic water bodies almost throughout Azerbaijan. Being a rare marine species, D. orientalis is observed in psammon at the Northern Absheron coast and among aquatic plants in the Davachi firth.

Representatives of the genera Pelagodileptus (1 species), Paradileptus (2 species), Trachelius and Teuthophrys (one species each) belong to the
freshwater plankton ciliate communities. These ciliates are active predators being even capable of feeding on small multicellular hydrobiants. They are observed in the large reservoirs of the Kura River basin, freshwater reservoirs of the Great Caucasus, South-Eastern Azerbaijan and the Nakhichevan Autonomous Republic.

Representatives of the last genus of this family — *Paraspathidium* (3 species) were observed only in marine biotopes, mainly in psammon, but can be also found in sea baths among rotting algae on the Absheron coast, as well as in periphyton of coastal rocks and hydraulic structures on the Caspian littoral of the North-Eastern Azerbaijan.

It should be noted that *P. longinucleatum* belongs to rare species; it was found several times, only in the benthos of the Davachi firth on algal silts.

**Fam. Mesodiniidae Jankowski, 1980**

In Azerbaijan, this family is represented by two genera — *Askenasia* (6 species) and *Mesodinium* (3 species). Representatives of the first genus are typical inhabitants of freshwater plankton. *A. mobilis* and *A. confunis*, first described from fresh waters of the Absheron (Alekperov, 1984), were observed in freshwater reservoirs of the Great Caucasus during further studies. The other species (*A. elegans, A. chlorelligera, A. volvox* and *A. stellaris*) are much more widespread and are observed in fresh waters of the Nakhichevan Autonomous Republic, the Kura River basin and the waters of South-Eastern Azerbaijan.

Species of the genus *Mesodinium* (*M. acarus, M. apsheronicum, M. cinctum*) are found only in plankton of the South and Middle Caspian, including desalinated sea areas — the Gizil-Agach Bay and the Davachi firth.

**Fam. Cyclotrichidae Jankowski, 1980**

Only 4 species of the genus *Cyclotrichium* living in plankton of the inland water bodies of Nakhichevan Autonomous Republic (*C. ovatum* and *C. gigas*), the Kura River basin (*C. inflatum*) and North-Eastern Azerbaijan (*C. cyclocaryon*) were found in Azerbaijan. Most of them can be related to the rare species, since they occur only from spring through the first half of summer.

**Fam. Amphileptidae Bütschli, 1889**

In Azerbaijan, this family is represented by three genera — *Amphileptus* (5 species), *Litonotus* (7 species) and *Loxophyllum* (7 species).

Representatives of the first genus are widespread in the freshwater benthos communities on the silty bottoms of fresh water bodies of the Kura River basin, in the phytociliocenoses of the coastal zone, and in the periphyton of the littoral stones and hydro-constructions of the Absheron freshwater reservoirs and the inland fresh waters of the South-Eastern Azerbaijan.

Most representatives of the genus *Litonotus* were found only in fresh waters. Among those, *L. triquetra, L. obtusus, L. minusculus* and *L. crystallinus* were observed in the reservoirs of the North-Eastern and South-Eastern Azerbaijan, as well as in the reservoirs of the Great Caucasus.

*L. anguilla* and *L. uninucleatus* can be considered as the most common representatives of the genus *Litonotus*. These species were observed in fresh water bodies of the Northern and North-Western Azerbaijan, as well as in reservoirs of the Kura River basin.

*L. mononucleatus* apparently should be recognized as the rare species. Commonly it is found only in late autumn, in small number of specimens and only in the desalinated area of the Caspian Sea — Davachi firth and Gizil-Agach Bay.

The genus *Loxophyllum* is represented by seven species, of which *L. meleagris, L. helus,* and *L. vorax* are the most widely spread and observed in the fresh water basins of the Kura, Absheron, North, North-Western and South-Eastern Azerbaijan. In addition to the reservoirs of the Great Caucasus, where the genus *L. multiplicatum* occurs, it can be found also in gray and black silts and in coastal thickets of aquatic plants.

The species *L. undulatum, L. semilunare* and *L. hyalinum* are occasionally found on the sandy and silty bottoms of the desalinated Davachi firth and the Gizil-Agach Bay of the Caspian Sea.

**Fam. Chilodonellidae Deroux, 1970**

Representatives of three genera belonging to the family Chilodonellidae were found in Azerbaijan. These are: *Chilodonella* (3 species), *Trithigmnostoma* (4 species) and *Alinostoma* (2 species).

The species of *Chilodonella* are common components of freshwater benthic and periphyton ciliate communities. *C. uncinita* occurs also on the gills of many freshwater fishes, i.e. in fact it is their exo-parasite. Ciliates from this genus are especially often found in the freshwater reservoirs of the North-
Western Azerbaijan, where the fish contamination with various exoparasites is generally high.

The other species of Chilodonella (C. aplanata and C. capucina) were observed in fresh waters of the reservoirs of the Kura River basin, South-Western and South-Eastern Azerbaijan, and brackish waters of the Kura River mouth.

Representatives of the closely related genus Trithigmostoma are also inhabitants of freshwater benthos, periphyton and coastal phytociliocenosis. T. cucullulus and T. steini are the most common species observed in the reservoirs of the Nakichevan Autonomous Republic, the Kura River and fresh waters of the Great Caucasus. In spring, due to precipitation and snow melting, they often occur in the biotopes of meadow and forest soils of the North-Western and Northern Azerbaijan, as well as in the soils of Talish mountain forests (South-Eastern Azerbaijan) characterized by high soil moisture.

The third species of Trithigmostoma — T. hialina is extremely rare. Until now, this species has been observed only a few times in the spring waters in the forest zone of the Great Caucasus. In the other regions of Azerbaijan it has never been found.

Representatives of the genus Alinostoma were observed in the Absheron soils and in the forest zone of the North-Eastern Azerbaijan (A. multivacuolatum), as well as in the soils of the household plots of the Northern and North-Eastern Azerbaijan (A. polyvacuolatum).

Fam. Gastronautidae Deroux, 1994

During our research, two species from the genus Gastronauta were found in Azerbaijan. Both representatives are typical pedobionts, living in soils of various regions of the country. First, G. membranaceus was observed in humid mosses of the mountain forests of the Great Caucasus, and also in meadow and forest soils of tugai forests along the Kura River.

The second species, G. derouxii was found in the Absheron soils, polluted with oil products and reservoir waters. It was not found in any other regions of Azerbaijan.

Fam. Chlamidodontidae Stein, 1859

Seven species of the genus Chlamidodon were found in Azerbaijan, most of which were observed in the sea. C. mnemosyne, C. obliquus and C. major were recorded in the psammon along the entire Azerbaijan sector of the Caspian Sea.

In addition to marine psammon, the species C. rectus and C. roseus were also found in the fouling of the coastal rocks of the Northern Coast of Absheron and sea baths on the Southern Caspian littoral. The genus C. cyclops was observed only in the marine periphyton of the coastal rocks of the Northern Absheron.

C. erythorhynchus and C. major were observed in fresh waters of the Absheron and North-Eastern Azerbaijan. The species C. major is the rarest, occurring in summer in the Absheron salt lakes.

Fam. Dysteriidae Claparède et Lachmann, 1858

Ten species belonging to the genus Dysteria were found in Azerbaijan. All of them are typical marine ciliates, the inhabitants of periphyton, where they are often attached to the substrate. Three species — D. procera, D. monostyla and D. pectinata were found not only in the marine periphyton of the coastal cliffs of the Northern Absheron, but also on silty sand in the Davachi firth.

The other three species — D. parovalis, D. armata and D. calcini are spread only on the Southern Caspian coast, which is possibly due to higher water salinity of this area.

The rarest species are D. navicula, D. sulcata and D. marioni. These three species were always observed by several specimens in periphyton of the areas protected from marine surf. They are also found on the littoral of the Lankaran and Astara coasts of the South Caspian Sea.

Fam. Hartmanulidae Poche, 1913

Four species of the genus Hartmanula were found in the territories of Azerbaijan. They are all typical inhabitants of the marine periphyton. The most common are H. acrobates and H. angustipilosa, sometimes reaching high numbers on the periphyton of hydraulic structures and natural objects of the Southern Caspian.

H. ocellata, and especially H. entzi, are significantly less common. Usually these two species can be found in periphyton and on algae’ surfaces in the first half of summer on the littoral of the Lankaran and Astara coasts of the South Caspian Sea.

Fam. Orthodonellidae Jankowski, 1968

In Azerbaijan, this family is represented by two genera — Chilodontopsis with 3 species, (C. kurensis, C. vermiformis, C. depressa) and Zosterodasys, with
6 species (Z. mirabilis, Z. caspica, Z. cantabrica, Z. vorax, Z. fluviatilis and Z. debilis).

Representatives of the genus Chilodontopsis were observed in fresh waters of the Kura River basin, Nakhichevan Autonomous Republic water reservoirs and several times on the silty bottoms of the Davachi firth.

Representatives of the genus Zosterodasy were observed both in the sea (Z. mirabilis, Z. caspica, Z. cantabrica) on the Absheron Peninsula and among rotting algae in the sea baths of the South Caspian littoral. The species Z. cantabrica was found several times in the desalted Davachi firth.

The following three species, Z. vorax, Z. fluviatilis and Z. debilis are mostly freshwater inhabitants, especially often found on polluted and silty soils in the eutrophic reservoirs of the Lower Kura River, Nakhchivan AR and South-Eastern Azerbaijan. In the latter region, they are frequently found in the period of autumn rains and in surface layers of Talish mountain forest soils.

Fam. Nassulopsidae Deroux in Corliss, 1979

In Azerbaijan, this family is represented by the genera Nassulopsis (4 species) and Beersena (former Phasmatopsis, with 1 species). Both genera are inhabitants of fresh waters, especially they are found in ciliate communities of coastal thickets of aquatic plants (phytociliocenoses).

Three species of Nassulopsis (N. elegans, N. lagenula and N. muscicola) were observed in fresh waters of the Nakhichevan Autonomous Republic, the Kura River basin and the reservoirs of the Great Caucasus, where they are quite often met in benthos and phytociliocenoses, mainly in early summer.

N. aziatica was first described in the psammon of the middle flow of the Syrdarya River (Uzbekistan) and was unknown in the other regions for a long time (Alekperov, 1997). In Azerbaijan, N. aziatica was observed only in the phytociliocenoses of the Varvara reservoir (Middle Kura River).

Representatives of the genus Beersena (formerly Phasmatopsis) – B. mirabundis, first found in fresh waters of the Nakhichevan Autonomous Republic (Alekperov, 1984), are extremely rare and stillunknown in the other regions of Azerbaijan.

It should be noted that ciliates from this genus are generally rare: e.g., Phasmatopsis limax described for the first time in fresh waters of France has not yet been observed anywhere else outside France.

Fam. Eurgasoniidae Corliss, 1979

Only one genus belonging to this family was found in Azerbaijan – Furgasonia with 4 species (F. tricirrata, F. rubens, F. theresae and F. blochmanni). All four species are typical inhabitants of fresh waters. Of these, F. tricirrata and F. rubens are widely distributed in fresh water bodies of the entire Kura River basin.

F. theresae is the rarest species found only a few times in fresh water bodies of the South-Eastern Azerbaijan, and F. blochmanni is found in the reservoirs of the Absheron and desalinated Davachi firth.

Interestingly, in the autumn season F. blochmanni occurs on the surface layers of the broad-leaved forests soils of North-Eastern Azerbaijan, where it is present as a facultative species.

Fam. Nassulidae Fromentel, 1874

Representatives of this family are traditionally considered freshwater inhabitants, though recent studies show that among them there are also marine and soil species.

Twelve species of the genus Nassula and three – of the genus Obertraumia are observed in Azerbaijan. Most species of Nassula really were observed in fresh water. N. ornata, N. parva and N. tumida are found very frequently in all places. These species were observed in many freshwater reservoirs of various regions of Azerbaijan.

N. marina, first described in Azerbaijan (Alekperov, Asadullaeva, 1997), was found in the Caspian Sea. These ciliates, as well as N. argentula, are occasionally observed in sea baths on the Absheron littoral and several times were found in the periphyton of the Astara coast of the Southern Caspian.

Two species, N. dragenscoi and N. etoschens, were observed in the soils polluted with oil products and salt waters in the old oil fields near Baku. However, N. dragenscoi was also observed in the relatively clean soils of the Absheron, together with another species, N. terricola, which was also observed in meadow and forest soils of the Talish Mountains and the Great Caucasus.

Freshwater species N. nahchivanica, first described in one reservoir of Nakhichevan AR (Alekperov, 1984a), should also be noted. Interestingly, this species was not observed in the other
regions of Azerbaijan; however, it was found during our research in the water bodies of Uzbekistan (Shor-Kul Lake and Kairakum Reservoir), as well as in Tajikistan (mountain lakes near Aslanbob city) (Alekperov, 1997).

In Azerbaijan, the genus *Obertrumia* is represented by three species (*O. regina*, *O. aurea* and *O. gracilis*). The latter two species are not rare, they are common components of freshwater phytociliocenoses and sand and silty benthos of the reservoirs in the Kura River basin, North-Western and North-Eastern Azerbaijan.

The distribution of *O. regina*, described in fresh waters of the Varvara Reservoir (the Kura River basin, Central Azerbaijan), is more limited. Except for the place of the first description, this species was found only in the reservoirs of the Great Caucasus in Azerbaijan (Alekperov, 1984a).

Interestingly, *O. regina* was widely observed in the fresh water bodies of the Middle Asia — in the Syrdarya and Kara-Darya rivers (Uzbekistan) and the Kafernigan River, as well as in the mountain lakes near “Tigrovaya Balka” State Reserve (Tajikistan).

**Fam. Pseudomicrothoracidae Jankowski, 1967**

In Azerbaijan, this family is represented only by the genus *Pseudomicrothorax* with two species — *P. agilis* and *P. dubius*. These are typical representatives of fresh waters and soils. Like many ciliates from the genus *Nassula*, the species belonging to the genus *Pseudomicrothorax* also feed on blue green algae staining the transparent ciliates’ endoplasm in blue-green color.

These widespread species were observed in fresh waters in all regions of Azerbaijan. In soils, they prefer meadow and forest, and in the dry season in summer they migrate from the surface layers to deeper humid horizons of 20-35 cm and more.

**Fam. Microthoracidae Wrzesniowski, 1870**

In Azerbaijan, this family is represented by 2 genera — *Microthorax* with 9 species, *Leptopharynx* with 3 species, *Trochiliopsis* and *Drepanomonas* with 1 species in each.

Representatives of all these genera are true pedobionts, common in soil ciliate communities. Most species of *Microthorax* were found in the soils of Talish mountain forests, broad-leaved forests of the North-Eastern Azerbaijan and meadow soils of the Great Caucasus. They are often found in wet mosses near forest springs. *M. pusillus* and *M. transversus* were also observed in the eutrophic ponds of the South-Eastern Azerbaijan.

Representatives of the genus *Leptopharynx* are also typical inhabitants of mosses, soils and eutrophied fresh waters. Two species (*L. minimus* and *L. margaritata*) were first found in the soils of St. Petersburg parks (Alekperov, 1993) and only later were observed in the soils of the Talish Mountains and of the Great Caucasus forests.

The genera *Trochiliopsis* and *Drepanomonas* are primarily pedobionts; however, they are often found in many fresh water bodies of the Kura River basin.

**Fam. Colpodidae Bory de St. Vincent, 1826**

Traditionally, representatives of this family are considered typical inhabitants of soils, though a number of species were observed in fresh waters.

Two genera belonging to this family were found in Azerbaijan — these are the genus *Colpoda* with 11 species and the genus *Bresslaua* with 3 species.

The representatives of *Colpoda* — *C. maupasti*, *C. inflata*, *C. cucullus*, *C. aspera*, *C. edaphoni* and *C. colpidiopsis*, the widespread pedobionts, were observed in soils of forest zones and alpine meadows of the Great Caucasus, though *C. cucullus* and *C. inflata* was often found in the fresh waters of the Kura River basin and the Nakhchivan Autonomous Republic.

Such species as *C. minima*, *C. bifurcata*, *C. oblonga* and *C. praestans*, being met incomparably less frequently, should also be noted, since they are observed only in a certain season of the year and for very short period. These species were observed in citrus plants plantation soils of South-Eastern Azerbaijan as well as in eutrophic fresh water reservoirs of the same region. Such species as *C. magna* and *C. oblonga* prefer fresh waters, where they occur both on sand and silty bottom, and in the phytociliocenoses.

In Azerbaijan the second genus, *Bresslaua* is represented only by three species, of which *B. vorax* and *B. insidiatrix* were observed in fresh water bodies of the Kura River basin, where they are usually found in late autumn. However, our studies showed that in freshwater these species are found as facultative ones, since they are mainly inhabitants of soils and mosses. The third species, *B. dissimilis* is an inhabitant of fresh waters and was described from the reservoir in the Great Caucasus (Alekperov, 1985).
During our further studies, they were also observed outside of Azerbaijan, in the floods of the Kafernigan River (Tajikistan).

**Fam. Hausmaniellidae Foissner, 1987**

In Azerbaijan, this family is represented by two genera: *Hausmaniella* (3 species) and *Avestina* (1 species). Representatives of the first genus are rare ciliates, typical pedobionts observed only in the mountain forest soils of the Pirguli State Reserve (the Great Caucasus).

*H. discoidea* several times was also registered in the rhizosphere of the chestnut oak in the North-Eastern Azerbaijan forests. The single representative of the second genus, *Avestina – A. acuta* was initially recorded in the forest soils of the Great Caucasus. More recent studies discovered it in the soils of mountain forests in the South-Eastern Azerbaijan.

**Fam. Grossgloskneriidae Foissner, 1980**

The representatives of this family are two genera found in Azerbaijan — *Grossgloskneria* (2 species) and *Pseudoplatyophrya* (2 species). These two genera are also typical pedobionts having a characteristic sucking mouth apparatus for feeding numerous yeast cells and small fungi in the soil. *G. acuta* is observed in the soils of the Northern and North-Western Azerbaijan near the border with Georgia.

*G. hyalina* was recorded only a few times in the meadow soils of the Shahdag National Park (the Great Caucasus).

Both species of *Pseudoplatyophrya* — *P. nana* and *P. terricola* were also found in the orchard soils of the South-Eastern Azerbaijan.

**Fam. Bursariidae Foissner, 1993**

In Azerbaijan, this family is represented only by the genus *Bursaria* with two known valid species — *B. truncatella* and *B. ovata*. In spite of the wide universal spreading, these ciliates are extremely rare in the fresh waters of Azerbaijan.

The first species, *B. truncatella* is confined to fresh waters of the mountain lakes of the Great Caucasus (Goygel Lake) and the Gandargel Lake (North-Western Azerbaijan, on the state border with Georgia). On the Absheron, during the period of our long-term research, it was observed only twice, in February, in fresh waters of the Jeyranbatus reservoir. It should be noted that these ciliates are very sensitive to changes in the environmental conditions and are capable of extremely rapid encystation.

The second species, *B. ovata* is also extremely rare and was observed several times in the waters of the forest springs of the Great Caucasus, mainly in the early spring. During the rest of the year it has never been observed.

**Fam. Bryophryidae Paytorac, Perez-Paniagua et Perez, 1979**

In Azerbaijan, this family is represented by the genus *Bryophrya* with three species (*B. bavariensis, B. rubescens* and *B. flexilis*). These are typical inhabitants of soils, mosses and marshes. In Azerbaijan they are frequently found in swamplike soils of the Karayaz State Reserve (North-Western Azerbaijan), near the state border with Georgia.

In the other regions, *B. bavariensis* was observed in soils flooded with irrigation waters of agrocenoses in the lower flow of the Kura River, and *B. rubescens* — in the abandoned fish ponds in the fish farms of the Lower Kura. They are rarely found, usually in the late autumn.

**Fam. Cyrtolophosidae Stokes, 1888**

In Azerbaijan, this family is represented by the genus *Cyrtolophosis* with four species (*C. mucicola, C. bivacuolata, C. minor* and *C. acuta*). All species are bacteriophages; they frequently form a tubular “house” around themselves. They are common in the freshwater benthos of eutrophic water bodies, on the silt bottom. *C. mucicola* and *C. minor* were recorded in the reservoirs of the Kura River basin, the North-Eastern and South-Eastern Azerbaijan and the Great Caucasus. *C. bivacuolata* and *C. acuta* were found in the reservoirs of the Nakhichevan Autonomous Republic, in fresh waters of the Absheron Peninsula, North and North-Western Azerbaijan.

**Fam. Platyophryidae Paytorac, Perez-Paniagua et Perez, 1979**

In Azerbaijan, this family is represented by the genus *Platyophrya* with 5 species. These ciliates are mainly pedobionts. The species *P. vorax, P. spumacola* and *P. sphagni* were found in the soils of citrus plants plantations in the South-Eastern Azerbaijan, in meadow and mountain forest soils of
alpine and forest zones of the Ismayilli State Reserve (the Great Caucasus), as well as in broad-leaved soils of the North-Eastern Azerbaijan. 

*P. macrostoma* was found in orchard cultivated soils of the North-Eastern Azerbaijan, and *P. dubia*, the rarest species, was observed in virgin soils of the Absheron Peninsula and in agroecenoses of cultivated soils in the Kura River delta.

**Fam. Woodruffiidae Gelei, 1954**

In Azerbaijan, this family is represented by two genera. The first genus is *Rostrophrya* with three species (*R. falcata, R. regis* and *R. camerounensis*). The species *R. falcata* Jankowski (2007) considered as a synonym to *E. ouganda* (Dragescos, 1972). In our opinion, *R. falcata* has enough differences from *E. ouganda*; that is why we keep its status as valid. It was found in fresh waters of the Nakhichevan Autonomous Republic, where it was observed on algal silt. In addition to this region, it was only once observed in fresh waters of mountain reservoirs of the Nakhichevan Autonomous Republic, in the coastal biotopes of silty bottom.

The only representative of the last genus, *Woodruffia*, is *W. rostrata* which has a peculiar distribution in Azerbaijan. This species was found only in the Mingechaur reservoir (the Kura River basin) during all time of the research, where it showed amazing constancy of distribution in time and space. *W. rostrata* massively increases its population density in the end of April in plankton of the Khanabad Gulf of the Mingechaur reservoir. Here, such a massive development is observed during no more than two weeks, after which this species completely falls out of the plankton community and disappears until the next year. A similar pattern was observed in this area for several years. However, it was not observed in the other regions of Azerbaijan.

Interestingly, outside Azerbaijan it was also found only in fresh waters of mountain reservoirs on the Kitob pass (Uzbekistan), in April.

**Fam. Briotopidae Jankowski, 1980**

In Azerbaijan, this family is represented by two genera: *Bryometopus*, with two species, and *Thylakidium*, with 3 species. Both of them are typical pedobionts. *Bryometopus pseudochilodon*, found in the soils of Azerbaijan, was observed in meadow and forest soils of mountain forests of Talish and Great Caucasus forests. The second species, *B. sphagni* was observed several times, only in small number of specimens, in the soil litter of the broad-leaved forests of the North-Eastern Azerbaijan, near the state border with Russia.

The second genus, *Thylakidium* is also an inhabitant of most deciduous forest soils in the North-Eastern Azerbaijan, where two observed species (*T. truncatum* and *T. macrostomum*) occur mainly in wet forest litter and mosses. In addition, *T. truncatum* and *T. macrostomum* were also found in water accumulated in tree hollows, in the South-Eastern Azerbaijan mountain forest.

**Fam. Colpidae Nitzsch, 1827**

In Azerbaijan, this family is represented only by the genus *Coleps* with 13 species. *C. hirtus*, *C. bicuspid*, *C. elongatus* and *C. lacustris* were found in fresh waters. These species are common in all fresh water reservoirs of Azerbaijan, increasing their density on a large scale at certain times. These ciliates are among the most famous histophages, actively participating in the processes of dead organic matter decomposition.

Such species as *C. remanei*, *C. trichotus*, *C. spiralis*, *C. arenicolus* and *C. spinosus* were found on the littoral of the South and Middle Caspian, mainly in marine baths with decaying organic residues.

Two species, *C. spinosus* and *C. nolandi*, were observed in the salted Davachi firth and Gizil-Agach Bay of the Caspian Sea, and in the freshwater reservoirs of the Absheron. *C. hirtus* and *C. bicuspid* occasionally were observed in soils of agroecenoses (North-Eastern Azerbaijan), especially in soils having high content of organic compounds.

*Coleps pulcher* was found only a few times in the psammion of the Astara coast of the Caspian Sea. It was observed twice in the periphyton of coastal rocks among red algae.

**Fam. Holophryidae Perty, 1852**

The family is represented by a single genus *Holophrya* with 8 species, mainly inhabitants of fresh water bodies. Such species as *H. gracilis*, *H. saginata* and *H. nigricans* are widespread in freshwater reservoirs of the Nakhichevan AR, preferring the biotopes of silty bottom.

Two species, *H. vorax* and *H. salinarum*, were found in the salt lakes of the Absheron Peninsula.
and in the desalted bays of the Caspian Sea. *H. carchesi*, *H. africana* and *H. spirigrophaga* were observed in the coastal thickets of the aquatic plants of fresh water bodies of the Kura River basin and the Absheron reservoirs, and also in the late autumn in forest soils of the broad-leaved forests of the North-Western Azerbaijan.

It should be noted that the presence of these species in soils is explained by its high humidity which makes it possible for freshwater ciliates to be present as elective pedobiont species communities during certain periods of time.

**Fam. Placidae Small et Lynn, 1985**

Only the genus *Placus* with two species represents this family in Azerbaijan. Of these, *P. striatus* is widespread and occurs in psammon and sea baths on the littoral of the Absheron coast of the Caspian Sea, as well as in a few salty lakes of the Absheron.

The second species, *P. longinucleatus*, originally described from fresh water bodies in Germany (Song and Wilbert, 1989), was observed in Azerbaijan in psammon of the Absheron South coast and later — in brackish bays of the Caspian Sea — Davachi frith and Gizil-Agach Bay.

It should be noted that both representatives of this genus can be considered the rare species, since they always occur during a very short period of time and in most cases — in small number of specimens.

**Fam. Plagiocampidae Kahl, 1926**

In Azerbaijan, this family is represented by only one genus — *Plagiocampa* with 11 species. Ciliates of this genus are mainly inhabitants of freshwater benthos.

Of these, *P. mutabile* and *P. atra* were found in fresh water reservoirs of the Kura River basin on silty bottoms, as well as in coastal phytociliocenoses. Only *P. acuminata* was observed in the fresh water reservoirs of Nakhichevan; however, this is largely due to the fact that ciliatofauna of this region is rather poorly studied.

*P. binucleata*, *P. multisetata* and *P. bitricha*, all living on algal and black silt, were found in the fresh water reservoirs of the Great Caucasus, but *P. ovata* and *P. rouxi* preferred the coastal thickets of algae.

*P. difficilis* and *P. caudata* were observed in the soil biotopes, they were first found in meadow and forest soils of broad-leaved forests of the North-Eastern Azerbaijan and tugai forests along the Kura River.

The rarest species, *P. kurensis*, was found in the Kura River shallow bays overgrown with algae, near the state border with Georgia (North-Western Azerbaijan). Interestingly, this species was not observed in similar conditions downstream the Kura River.

**Fam. Prorodontidae Ehrenberg, 1834**

In Azerbaijan, this family is represented by only one genus *Prorodon*, taxonomy of which at present time is in the process of strong changes. That is why we present the species composition of this genus according to the traditional scheme.

In Azerbaijan, the genus *Prorodon* is represented by 10 species. Two species (*P. nucleolatus*, *P. ovalis*) were observed only in the marine biotopes — in sea baths on the splash zone of the North coast rocks of the Absheron Peninsula, while *P. platyodon* and *P. niveus* were often found in the phytociliocenoses of the desalted Davachi frith and the Gizil-Agach Bay of the Caspian Sea in spring. However, they were also observed in the fresh water reservoirs of the North-Eastern Azerbaijan.

The most common ciliates from this genus are the typical freshwater species: *P. mimeticus*, *P. laurenti*, *P. lucens* and *P. plurivialis*; they are observed in fresh waters of the North-Western and South-Eastern Azerbaijan as well as in the reservoirs of the Great Caucasus and the Kura River basin. The two rarest species (*P. ellipticus* and *P. africana*) were found only in fresh waters of the Nakhichevan Autonomous Republic.

**Fam. Urotrichidae Small et Lynn, 1985**

In Azerbaijan, this family is represented by three genera — *Rhadagostoma* (2 species), *Urotricha* (14 species) and *Longifragma* (2 species).

Two species of *Rhadagostoma* — *R. completum* and *R. nudicaudatum* are rare, the first one was found only a few times in the freshwater benthos, only in autumn, in reservoirs of the Kura River basin, and the second one was recorded in the Jeyranbatan reservoir in the Absheron only in the late autumn and always in low number of specimens. These species were not observed in the other seasons.

Two species of *Urotricha* — *U. atypica* and *U. turanica* were first described in the soils of St. Petersburg parks (Alekperov, 1993) and the second one — in the psammon of the brackish Isyk–Kul Lake (Alekperov, 1997). Much later, both those species were also found on silty bottoms in the fresh waters.
of the South-Eastern Azerbaijan.

*U. farcta, U. macrostoma* and *U. apsheronica* prefer freshwater plankton. They were observed in fresh waters of the Great Caucasus reservoirs, in plankton of Tertercay reservoir (Nagorno-Karabakh, Azerbaijan), as well as in the reservoirs of the Absheron Peninsula.

The most common species are *U. sphaerica, U. armata, U. discolor, U. baltica* and *U. pelagica* inhabiting plankton communities of fresh water reservoirs of the Kura River basin and reservoirs of the Absheron Peninsula.

Such species as *U. valida, U. globosa* and *U. corlissiana* were significantly less common and were observed in plankton and phytociliocenoses of eutrophic water bodies in the South-Eastern Azerbaijan. Additionally to water reservoirs, two species, *U. atypica* and *U. terricola*, were observed also in soils of Talish mountain forests and citrus plants plantations of the South-Eastern Azerbaijan.

Two representatives of the last genus, *Longifragma* (*L. obligua* and *L. gracilis*) are rare. These species are also found mainly in plankton of fresh waters. They were observed in the mountain lakes of the Great Caucasus, and in fresh waters of the Absheron Peninsula.

**Fam. Plagiopylidae Schewiakoff, 1896**

In Azerbaijan, this family is represented by two genera — *Sonderia* with 4 species and *Plagiopyla* with 5 species. Two species of *Sonderia* (*S. macrochilus* and *S. megalabiata*) were found on the littoral of the South and Middle Caspian Sea. *S. megalabiata* was first described in the contaminated zone of the marine littoral on the South coast of the Absheron (Alekperov, Asadullaeva, 1996). Later it was also found among the rotting algae of the sea baths of the South Caspian.

The second species, *S. macrochilus* prefers clean biotopes and is much more common on silty bottoms, in periphyton communities among red algae and in coastal phytociliocenoses along the shoreline of the South and Middle Caspian Sea.

The last two species of this genus (*S. sinuata* and *S. paralabiata*) are extremely rare and observed in the freshened zones of the Caspian Sea (Davachi frith, Gizil-Agach Bay and the Kura River delta).

Representatives of the genus *Plagiopyla* are mainly observed in marine benthos. For example, *P. frontata* and *P. stenostoma* are found on the black silt and in sea baths among the rotting algae of the Southern coast of the Absheron Peninsula. *P. ovata* is also observed in the sea where it prefers phytociliocenoses of the pure coastal thickets of the Gizil-Agach Reserve. Although *P. nasuta* is considered a freshwater species, in addition to the fresh waters of the eutrophic water bodies of the Kura River mouth, where it is common in black silt or sapropel, it was also observed in the contaminated sea areas on the South coast of the Absheron, as well as in the desalinated Davachi frith where it is quite common; the same can be said also about another species of this genus – *P. vestita*.

**Fam. Frontoniidae Kahl, 1926**

In Azerbaijan, this family is represented by 4 genera — *Frontonia* with 10 species, *Disematostoma* with 2 species, *Wenrichia* with 1 species and *Stokesia* with 2 species.

Representatives of the genus *Frontonia* were observed in both marine and fresh waters. In addition, some species were recorded in wet mosses and soils.

On the littoral of the South Caspian (the coasts of Lankaran and Astara), the species *F. arenaria, F. salmastra, F. marina* and *F. macrostoma* were found in sea baths among red algae. In addition, *F. salmastra* and *F. macrostoma* were also discovered on the coast of North-Eastern Azerbaijan, near the state border with Russia.

Most of the other species were found in fresh waters. For example, *F. azerbaijanica*, first described in Azerbaijan (Alekperov, 1983), prefers eutrophic reservoirs of the Kura River basin, where it occurs in silty bottom communities and in phytociliocenoses. Two other species, *F. leucas* and *F. obtuse*, prefer more pure and colder water bodies of the Great Caucasus; however, in the early spring they are periodically recorded in freshwater reservoirs of the South-Eastern Azerbaijan and in reservoirs of the North-Western Azerbaijan.

The species *F. roqui* was observed in fresh waters of the Nakhichevan Autonomous Republic; however, this species is also common in soils of the Talish mountain forests, where it is found in wet tree hollows and among mosses near forest springs. Finally, the species *F. elliptica* and *F. algivora* are likewise more characteristic for biotopes of wet mosses and swamps (North-Western Azerbaijan), though they were also observed in the eutrophic forest ponds of Lerik and Talish (South-Eastern Azerbaijan).
Two representatives of the genus *Disematostoma* occur in fresh waters of the South-Eastern Azerbaijan. Among these, *D. bütschlii* is also widespread in fresh waters of the Kura River basin, and *D. invallatum* during the whole time span of our research was observed only few times on the silty sand of the Khanbulanchay reservoir (South-Eastern Azerbaijan).

The single species of the genus *Wenrichia* — *W. lakhirica* was first described in a salt lake near Lahur village, the environs of Yavan town, Tajikistan (Alekperov, 1998). In Azerbaijan, it was found in 2009, in the salt lakes of the Absheron; it has not been observed yet in the other regions of the Republic.

The last genus of the family Frontoniidae — *Stokesia*, is represented by the species *S. vernalis*. Despite the fact that it occurs quite often in faunistic studies, it is extremely rare in Azerbaijan.

During the entire research period, the ciliates *S. vernalis* were observed only several times in the Kura River between Mingechaur and Varvara reservoirs, where the water comes from a 35 m depth, which even in summer leads to a decrease in water temperature down to 10-12 °C. Besides, *S. vernalis* was observed in plankton of the reservoirs of the Great Caucasus. In the other regions of Azerbaijan it was not observed.

**Fam. Lembadionidae Jankowski in Corliss, 1977**

In Azerbaijan, this family is represented by the genus *Lembadion* which includes three species. Being very characteristic ciliates, they can not be confused with representatives of any other family.

The species *L. bullinum* and *L. magnum* are typical benthic representatives of fresh waters, found on different bottoms and are frequently met in the communities of all coastal phytociliocenoses. *L. bullinum* is observed in all fresh water bodies of the Kura River basin — from the state border with Georgia to the Kura River delta. Besides, it is common in fresh waters of the Nakhichevan Autonomous Republic and South-Eastern Azerbaijan.

*L. magnum* often occurs together with the previously mentioned species, but it prefers eutrophic fresh waters.

Unlike the previous two, the third species, *L. lucens*, is the smallest; it is often met in freshwater plankton, but is also found in phytociliocenoses of fresh waters in the Kura River basin as well as in the waters of the Great Caucasus.

All representatives of this genus are active predators and always occur in the communities together with the other, small-size hydrobionts, including ciliates representing their food objects.

**Fam. Urocentridae Claparede et Lachmann, 1859**

This family consists of a single monotypic genus *Urocentrum* with a single species, *U. turbo*. These ciliates are common in alpha-mesosaprobic reservoirs of the Kura River basin, where they are found in the bottom layers and among the thickets of algae. *U. turbo* is widely spread in all eutrophied water reservoirs of Azerbaijan where it is common during the warm seasons, being observed from spring to autumn.

**Fam. Parameciidae Dujardin, 1840**

In Azerbaijan, this family is represented by the genus *Paramecium* with five species. Of these, three species were observed mainly in freshwater (*P. caudatum, P. woodruffi, P. putrinum*). All freshwater species of *Paramecium* prefer reservoirs characterized by rather high degree of eutrophication and are widespread in all regions of Azerbaijan. It should be noted that *P. caudatum* is often found in marine samples, especially in sea baths of the splash zone, and it is also frequently met in soil biotopes, occurring in both natural and cultivated soils.

Two other species, *P. calkinsi* and *P. multimicronucleatum*, are observed on the littoral of the Lankaran and Astara coasts of the South Caspian, as well as in the Davachi frith. In addition, *P. multimicronucleatum* several times was found in the polluted soils of the old oil fields of the Absheron Peninsula polluted with stratal water.

The species *P. bursaria*, bright green in color due to a variety of endosymbionts, is a common component of the freshwater benthic ciliate community. It prefers silty bottoms, especially algal and black silt. It is often met in coastal communities of freshwater phytociliocenoses in the Kura River basin, North-Western Azerbaijan and fresh waters of the Great Caucasus as well as the reservoirs of the Absheron Peninsula.

**Fam. Tetrahymenidae Corliss, 1952**

In Azerbaijan, this family is represented by a single genus *Tetrahymena* with two species. Of these, *T. pyriformis* (now a complex of species) is broadly known and widely spread. It is observed both in the fresh eutrophic reservoirs of the Absheron, in the Kura River basin, in the South-Eastern, North
and North-Western Azerbaijan, and in the soils of these regions, especially those having high organic content.

The second species, *T. edaphoni*, is found in cultivated soils of the Absheron household plots, as well as in meadow and mountain forest soils of broad-leaved forests of the Great Caucasus.

**Fam. Turaniellidae Didier, 1971**

In Azerbaijan, this family is represented by a single genus *Colpidium* with three species. All representatives of this genus are inhabitants of fresh waters with a high degree of saprobity.

*C. colpoda* is the most common species found in eutrophic lower flow waters of the Kura River, in reservoirs, abandoned fisheries ponds and salinogenic Davachi firth areas overgrown with higher aquatic vegetation.

The other two species, *C. singulare* and *C. striatum* prefer water bodies with more pure water. They are commonly found in fresh beta-mesosaprobic waters of the Nakhchivan Autonomous Republic, North-Western, North-Eastern and South-Eastern Azerbaijan.

**Fam. Spirozonidae Kahl, 1926**

In Azerbaijan, this family is represented by the only genus *Stegochilum* with two species (*S. fusiforme* and *S. smalli*). The first one is a typical saprobiont, observed usually with the other representatives of ciliate communities of freshwater black and sapropelic silts in reservoirs of the Kura River basin, Davachi firth, Absheron and fresh waters of the South-Eastern Azerbaijan.

Being described at first in the soils of Peterhof, *S. smalli* (Alekperov, 1993) was later found in Azerbaijan in soils heavily fertilized with manure of household plots in the South-Eastern Azerbaijan and in citrus plantations. So far, this species has not been observed in aquatic biotopes.

**Fam. Glaucomidae Corliss, 1971**

In Azerbaijan, this family is represented by two genera – *Epenardia* with one species and *Glaucoma* with two species. *E. myriophyllii* is a big, mobile ciliate, preferring fresh waters of the mesosaprobic zone. This species was found in early spring in the reservoirs of the Kura River basin, several times it was observed in the waters of the Great Caucasus mountain lakes, as well as forest springs in the Northern Azerbaijan.

Two species – *Glaucoma scintillans* and *G. chatoni* are typical bacteriophages, occurring both in fresh waters, especially in waters enriched with decomposing organic matter, and in soils with active processes of organic matter destruction. Both species are widely spread throughout the Republic.

**Fam. Ophryoglenidae Kent, 1881**

In Azerbaijan, this family is represented by the genus *Ophryoglena* with 11 species. Of these, *O. atra*, *O. acuminata*, *O. flava* and *O. catenula* were recorded in the reservoirs of the North-Western Azerbaijan in benthos and near-bottom plankton, as well as in the communities of coastal phyto-ciliocenoses of the Davachi firth and the Absheron Lake. All these species are extremely mobile, swim very fast with rotational movements of the anterior end of body.

The species *O. kahli*, *O. minima*, *O. mugardi* and *O. oblonga* are also inhabitants of fresh waters of the Kura River basin, while *O. mugardi* and *O. ovata* were also observed on the sand and silty soils of the desalinated Davachi firth and in the sea baths of the Caspian littoral of the North Absheron.

*O. pectans* and *O. viridis* should be considered as rare species. They were observed in low number of specimens during the whole period of the research in the reservoirs of the South-Eastern Azerbaijan, only in the early spring. These species were neither observed in the other seasons nor in the other regions of the country.

**Fam. Loxocephalidae Jankowski, 1964**

In Azerbaijan, this family is represented by 5 genera: *Dexiotricha* with 5 species, *Loxocephalus* with 2 species, *Platynematum* with 4 species, *Sathrophilus* with 3 species and *Cinetochilum* with 3 species.

All representatives of the genus *Dexiotricha* are inhabitants of fresh and brackishwater reservoirs characterized by alpha-mesosaprobic or polysaprobic degree of organic pollution. *Dexiotricha* occurs mostly on silty bottoms enriched with decomposing organic residues.

*D. simplex*, *D. polystyla* and *D. kahli* were observed in the thickets of rotting reeds in the freshened Davachi firth of the Caspian Sea, as well as in many fresh reservoirs of the Kura River basin with high saprobity.
The species *D. lucida* and *D. raikovi* are rare; they were observed several times in the polluted water bodies of the South-Eastern Azerbaijan, as well as in the abandoned fishponds of the Kura Experimental Sturgeon Fishery (Lower Kura).

The genus *Loxocephalus* is represented by two species — *L. luridus* and *L. intermedius*. Unlike *Dexiotricha*, representatives of this genus prefer clean water reservoirs of the beta-mesosaprobic zone, where they inhabit silty bottoms. Being a big size species, *L. luridus* is widely spread in fresh waters of the Kura River basin, as well as in the eutrophic fresh waters of the North-Western Azerbaijan, near the border with Georgia.

The second species of this genus, *L. intermedius*, is of smaller size; it was first described as an inhabitant of brackish waters (Kahl, 1928). In Azerbaijan, this species was observed in sea baths on the littoral along the Azerbaijani sector of the Caspian Sea, as well as in the salt lakes of the Absheron.

Representatives of the genus *Platynematum* occur both in freshwater (*P. sociale, P. hyalinum*), and in the sea waters (*P. marinum, P. denticulatum*). They all are the extremely rare species, usually found in water bodies having rotting aquatic vegetation.

*P. hyalinum* was observed both in freshwater reservoirs of the Kura River basin, and in the desalinated Gizil-Agach Bay of the Caspian Sea. *P. marinum* and *P. denticulatum* are found in the marine psammon of the Lankaran and Astara coasts of the Caspian Sea.

The taxonomy of the genus *Sathrophilus* is being actively revised now. Some species were transferred to the newly established genus *Kariphilus* (Jankowski, 2007). However, the species we mention here are still presented as the *Sathrophilus*-species.

Totally, three species of this genus were found, of which *S. muscorum* and *S. granulatus* were observed in the Talish mountain forest soils and in Lerik (South-Eastern Azerbaijan). Moreover, *S. granulatus* was observed several times in the abandoned fish ponds in the Lower Kura region. Finally, *S. putrinus* was observed in polypasprobic waters on sapropel silt in fresh waters of the North-Eastern Azerbaijan.

The last representative of the family Loxocephalidae — the genus *Cinetochilum* includes three species. The most common species, *C. margaritaceum*, was found mainly in the soils of the broad-leaved forests of the Great Caucasus, but later it was observed several times in cultivated soils of agrocenoses in the North and North-Western Azerbaijan, as well as in the soils of citrus plants plantations in the South-Eastern Azerbaijan.

A rarer species *C. impatens*, occurring on algal silt, was observed in fresh waters of the reservoirs of the Kura River basin. The marine species *C. marinum* was observed on the Northern coast of Absheron in sea baths on the littoral, as well as on silty bottoms and thickets of algae in the Davachi frith.

**Fam. Cyclidiidae Ehrenberg, 1838**

In Azerbaijan, this family is represented by 4 genera — a monotypic *Caspionella*, as well as *Cristigera* (5 species), *Cyclidium* (4 species) and *Protocyclidium* (1 species).

The ciliates *Caspionella bergeri* (Agamaliev, 1972), found and described in the Caspian Sea, were observed only in the periphyton of coastal rocks on the Northern coast of Absheron and in the phytociliocenoses of the Davachi frith.

Species of the genus *Cristigera* — *C. vestita, C. phoenix* and *C. media* are frequently found in the eutrophied fresh waters of the Absheron, North-Western Azerbaijan, and in the freshened parts of the Caspian Sea — the Davachi frith, Gizil-Agach Bay and the Kura River mouth. The last species, *C. constricta* was found only in contaminated soils of the Absheron oil fields.

The genus *Cyclidium* is represented by four species, of them *C. glaucoma* and *C. citrullus* are widely occurring eurybionts that were observed in fresh waters throughout Azerbaijan and along the coast of the Azerbaijani sector of the Caspian Sea. Two other species, *C. marinum* and *C. borrori*, were observed only on the Astara and Lankaran coasts of the Southern Caspian.

*Protocyclidium* with the single species *P. terrenum* was first discovered and described in the soils of St. Petersburg parks (Alekperov, 1993). Later on, the other species were included into the genus *Protocyclidium* (Foissner et al., 2002). However, in Azerbaijan ciliates from the typical species *P. terrenum* were found only much later (Alekperov, 2005), and so far they are known only from forest soils of the Ismayilli State Reserve, located in the Great Caucasus Mountains.

**Fam. Uronematidae Thompson, 1964**

The family Uronematidae is represented by two genera — *Uronema* and *Homaloglastra* (the latter is monotypic).
In Azerbaijan, the genus *Uronema* is represented by five species (*U. marium*, *U. nigricans*, *U. elegans*, *U. acuta* and *U. parduczi*). Of these, the first four species are eurybionts; they were observed in the sea, predominantly in benthos, on silty bottom with decomposing organic matters, and in fresh waters of eutrophicated stagnant water bodies, almost in all regions of the Republic. They are also present (although rarely) in soils, especially in rhizosphere plants, where they are localized near the dead roots, feeding on both bacteria and decomposing organics.

Unlike the others, *U. parduczi* is a much rarer species. It was observed on algal silt in the freshened Davachi firth and the Gizil-Agach Bay of the Caspian Sea. In addition, a low number of specimens of this species were found several times in periphyton of the North Absheron marine rocks.

*Homalogastra setosa* is mainly a pedobiont; it is a common species in the forest litter ciliate communities of broad-leaved forests of the North-Eastern Azerbaijan, mountain meadow and forest soils of the Great Caucasus and South-Eastern Azerbaijan.

**Fam. Pseudocohnilembidae Evans et Thompson, 1964**

One genus of this family, *Pseudocohnilembus*, with one species — *P. veisovi* (Alekperov, Musayev, 1988) was found in Azerbaijan. It should be noted that this species was found only once, during parasitological studies of nutria excrement collected on the ground, in the vivarium of the Institute of Zoology. It was not possible to determine more precisely whether this was a parasitic species or a species that had fallen out of the soil. Discovery of this species was the first and so far the last.

It should be also noted that the genus *Pseudocohnilembus* comprises some endoparasitic species of sea urchins; however, its parasitism in mammalian hosts is unknown.

**Fam. Azeridae Alekperov, 1985**

This family with the monotypic genus *Azerella* was first found and described in fresh waters of the South-Eastern Azerbaijan (Alekperov, 1985).

The single species, *A. calva* is extremely rare and after the first description it was observed only a few times in periphyton of the hydraulic structures and in benthos on algal silt of the Khanbulanchay reservoir (South-Eastern Azerbaijan).

It was not observed in the other regions.

**Fam. Gymnocyclidiidae Alekperov, 2009**

During the investigation of fresh waters in the North-Eastern Azerbaijan, a new ciliate family with the monotypic genus *Gymnocyclidium* was found and described (Alekperov, 2009). The single species *G. nabranicum* was found in fresh waters near the settlement Nabran (North-Western Azerbaijan).

It should be noted that these ciliates are extremely rare, they are usually found in early spring in periphyton and in phytociliocenoses of small freshwater reservoirs overgrown with aquatic vegetation. In the other regions of the republic it has not been observed yet.

**Fam. Pleuronematidae Kent, 1881**

In Azerbaijan, this family is represented by the single genus *Pleuronema* with 5 species. Two of these species (*P. crassum* and *P. coronatum*), being freshwater inhabitants, are observed in the mesosaprobic reservoirs of the Absheron, the Kura River basin, and reservoirs of the Nakhibchevan Autonomous Republic and South-Eastern Azerbaijan.

The other three species (*P. marinium*, *P. oculata*, *P. nana*) were observed on the Caspian littoral — in the psammon and periphyton of the Absheron coastal rocks.

The latter species (*P. nana*) was found in the freshened parts of the sea — Davachi firth, Gizil-Agach Bay, and in the Kura River delta. All species of this genus are eurybionts and are usually present in ciliate communities from spring to autumn.

**Fam. Epistyliidae Kahl, 1933**

This family is represented by the genus *Epistylys*, with 8 species. These colonial ciliates are common in almost all fresh water reservoirs.

In Azerbaijan, it is frequently met in standing water reservoirs of fish-pond farms in the Kura River basin, in the reservoirs of the South-Eastern and North-Western Azerbaijan, and the Great Caucasus area. Very often they attach to underwater objects, constituting a significant proportion of the ciliate communities of freshwater periphyton.

The exception is *E. procumbens*, which is usually living in freshwater plankton not attaching neither to the periphyton nor to the hydrobionts. The other species in the warm season are always present in the ciliate communities of the periphyton, often forming a continuous cover on the surface of different objects.
immersed in water. In addition, such species as *E. rotatorium*, *E. anastatica* and *E. dafniae* attach to the surfaces of the small-sized hydrobionts — rotifers, cyclopoids, daphnia and many others, covering them sometimes so tightly that the contours of the host’s body are not visible.

**Fam. Vorticellidae Ehrenberg, 1838**

In Azerbaijan, this family is represented by two genera: *Vorticella*, with 7 species, and *Carchesium*, with 6 species. Moreover, like the previously described genus *Epistylis*, the representatives of *Vorticella* and *Carchesium* are basically freshwater ciliates with the attached life mode. They are common components of periphyton; especially many of them are present in the aeration tanks of the water treatment plants.

Alternatively, *Vorticella* and *Carchesium* are often attached to representatives of the other groups of small multicellular hydrobionts (crustaceans, mollusks, etc.).

All of them are widely spread in fresh waters of various regions of Azerbaijan. They are observed in the reservoirs of the Kura River basin, in fresh waters of the Great Caucasus, the South-Eastern, the North-Eastern, and North Azerbaijan. In the Caspian Sea, they are most common in the freshened Davachi firth and Gizil-Agach Bay.

**Fam. Zoothamniidae Sommer, 1951**

This family is represented by the genus *Zoothamnum*, with 15 species of big colonial ciliates occurring in the marine waterbodies (*Z. arbuscula*, *Z. balticum*, *Z. marinum* and others), mainly in plankton, and also in the periphyton communities of fresh water bodies.

Some species were observed both in fresh and also in sea waters (*Z. plumosum*, *Z. kenti*, *Z. adamsi* and *Z. carcini*). Interestingly, some species were found mainly in the freshened zones of the Caspian Sea (*Z. carcini*, *Z. triophilum*, *Z. vermicola*).

Like all other sessile groups of ciliates, *Zoothamnum willingly* settle on the covers of multicellular hydrobionts.

**Fam. Telotrochidiidae Foissner, 1978**

In Azerbaijan, this family is represented by a single genus, *Tetrochidium*, with three species. The most common species, *T. crateriforme* was observed in fresh waters of the Absheron and in reservoirs of the North-Eastern, South-Eastern and North-Western Azerbaijan. Two other species (*T. johanninae* and *T. cylindricum*) occur less frequently; they were first recorded in the Absheron reservoirs and later — in fresh waters of the North-Eastern Azerbaijan.
Fig. 2. Some free-living ciliates of Azerbaijan (impregnation with silver nitrate and proteinate). 1 - *Loxodes striatus* (Engelmann, 1862); 2 - *Condylostoma kasymovi* Alekperov, 1984; 3 - *Stentor coerules* Ehrenberg, 1830; 4 - *Amphisiella annulata* (Kahl, 1928); 5 - *Pseudokeronopsis rubra* (Ehrenberg, 1838); 6 - *Bakuella imbricata* Alekperov, 1982; 7 - *Diohyrs multicirratus* Alekperov, 1984; 8 - *Rimostrombidium* sp.; 9 - *Metopus fuscoides* Alekperov, 1984; 10 - *Obertamia regina* Alekperov, 1984; 11 - *Brachonella mitriformis* Alekperov, 1984; 12 - *Cyclotruchium inflatum* Alekperov, 1984; 13 - *Trithigmastoma steini* (Blochmann, 1895); 14 - *Zosterodasys mirabilis* Alekperov, 1984; 15 - *Furgasonia blochmani* Fauré-Fremiet, 1967; 16 - *Gymnocyclidium nabranicum* Alekperov, 2009; 17 - *Colpoda aspera* Kahl, 1926; 18 - *Sonderia megalabiata* Alekperov et Asadullayeva, 1996; 19 - *Frontonia azerbaijanica* Alekperov, 1983; 20 - *Wenrichia lachurica* Alekperov, 1996.
The testate amoebae

At present, totally 265 species of testate amoebae are known from fresh waters and soils of Azerbaijan. Although the history of studies of these protists in Azerbaijan is rather long, the investigations of testate amoebae have been intensified only during the recent 15 years; therefore, the total species number of testate amoebae in Azerbaijan known to date is far from the complete biodiversity knowledge about these protists in our region.

Moreover, it should be taken into account that this group of Protozoa has not been studied in the Caspian Sea. Thus, in the future one can expect a substantial replenishment of the testate amoebae species diversity of our region, due to the undoubtedly existing marine species of these protists. The taxonomic composition of testate amoebae in Azerbaijan according to the data published by different authors is presented in Table 2.

The taxonomy of testate amoebae is given in accordance with the system of eukaryotes proposed by the international team of specialist (Adl et al., 2005).

Notes on distribution of testate amoebae in different biotopes and regions of Azerbaijan

Amoebozoa Lühe, 1913, emend. Cavalier-Smith, 1998
Order Arcellinida Kent, 1880
Suborder Arcellina Haeckel, 1894
Fam. Microcoryciidae de Saedeleer, 1934
Cochliopodium digitatum (Greeff, 1866) Penard, 1902
Distribution: the rice fields of Lankaran (Veysig, 1939).

Amphizonella violacea Greeff, 1886
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

Fam. Arcellidae Ehrenberg, 1843
Arcella arenaria Greeff, 1866
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirrova, 2014a, b, 2015b), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

A. arenaria v. compressa Chardez, 1963
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

A. arenaria v. sphagnicola Def., 1928
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

A. polypora Penard, 1902
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirrova, 2014a, b, 2015b), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

A. conica Playfair, 1918
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirrova, 2014a, b, 2015b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

A. vulgaris Deflandre, 1928
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1939; Snegovaya, Alekperov, 2010; Tahirrova, 2015b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

A. vulgaris v. undulata Deflandre, 1928
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

A. gibbosa Penard, 1890
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirrova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

A. gibbosa v. laevis Deflandre, 1928
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).
Table 2. Species composition of testate amoebae of Azerbaijan according to different authors.

| Taxonomic composition | After publications by Snegovaya, Alekperov and Tahirova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1938, 1939, 1942); Veysig (1930, 1931, 1939, 1940) |
|-----------------------|-------------------------------------------------|-------------------|---------------------------------|
| Fam. Microcoryciidae De Saedeleer, 1934 | | | |
| 1 Cochliopodium digitatum (Greeff, 1866) Penard, 1902 | + | | |
| 2 Amphizonella violacea Greeff, 1886 | + | | |
| Fam. Arcellidae Ehrenberg, 1830 | | | |
| 3 Arcella arenaria Greeff, 1866 | + | + | |
| 4 A. arenaria v. compressa Chardez, 1963 | | | |
| 5 A. arenaria v. sphagnicola Def., 1928 | + | | |
| 6 A. polypora Penard, 1902 | + | | |
| 7 A. conica (Playfair, 1918) | + | | |
| 8 A. vulgaris Deflandre, 1928 | + | + | |
| 9 A. vulgaris v. undulate Deflandre, 1928 | + | | |
| 10 A. gibbosa Penard, 1890 | + | | |
| 11 A. gibbosa laevis Deflandre, 1928 | | | |
| 12 A. artiocrea Leidy, 1876 | + | | |
| 13 A. stelleris Perty, 1849 | + | | |
| 14 A. megastoma Penard, 1926 | + | | |
| 15 A. megastoma arcuata Deflandre, 1928 | + | | |
| 16 A. dentata Ehrenberg, 1832 | + | | |
| 17 A. excavata Cunningham, 1919 | + | + | |
| 18 A. discoides Ehrenberg, 1872 | + | + | |
| 19 A. hemispherica Perty, 1852 | + | + | |
| 20 A. bathystoma Deflandre, 1928 | + | | |
| 21 A. catinus Penard, 1890 | | | |
| 22 A. crenulata Deflandre, 1928 | + | | |
| 23 A. atave Collin, 1914 | + | + | |
| 24 A. rotundata Playfair, 1918 | + | | |
| 25 A. rotundata v. aplanata Def., 1928 | | + | |
| 26 A. brasiliensis Cunha, 1913 | + | | |
| 27 A. mitrata Leidy, 1876 | + | | |
| 28 A. costata Ehrenberg, 1847 | | + | |
| 29 Pyxidicula operculata (Agardh, 1827) Ehrenberg, 1838 | | + | |
| Fam. Cyclopyxidae Schonborn, 1989 | | | |
| 30 Cyclopyxis kahl Deflandre, 1929 | + | + | |
| 31 C. kahl v. cyclostoma Bonn., Thom., 1959 | + | | |
| 32 C. kahl v. grandis Chibisova, 1967 | + | | |
| 33 C. putens Thomas, 1960 | + | | |
| 34 C. intermedia Kufferath, 1932 | + | | |
| 35 C. euristoma Deflandre, 1929 | + | + | |
| 36 C. penardi Deflandre, 1929 | + | | |
| 37 C. arcelloides Penard, 1902 | | | |
| 38 C. ambiguus Bonnet et Thomas, 1960 | + | + | |
| 39 Trigonopyxis arcula (Leidy, 1879) | + | | |
| Fam. Centropyxidae Deflandre, 1953 | | | |
| 40 Centropyxis aculeata Ehrenberg, 1838 | + | + | |
| 41 C. hirsuta v. oblonga Deflandre, 1929 | + | | |
| 42 Centropyxis spinosa Cash, 1905 | | | |
Table 2. (Continuation)

| Taxonomic composition | After publications by Snegovaya, Alekperov and Tahirova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1938, 1939, 1942); Veysig (1930, 1931, 1939, 1940) |
|-----------------------|-------------------------------------------------|-------------------|---------------------------------|
| 43 C. deliculata Penard, 1902 | + | + |
| 44 C. aerophila Deflandre, 1929 | + | + |
| 45 C. aerophila v. sphagnicola Def., 1929 | + | + |
| 46 C. plagiotoma Bonnet et Thomas, 1956 | + | + |
| 47 C. plagiotoma v. terricola Bonnet et Thomas, 1955 | + | + |
| 48 C. pseudodeflandriana Bonnet et Gomez-Sanchez, 1984 | + | + |
| 49 C. elongata (Penard, 1890) | + | + |
| 50 C. orbicularis Def., 1929 | + | + |
| 51 C. ecornis Ehrenberg, 1838 | + | + |
| 52 C. gibba Deflandre, 1929 | + | + |
| 53 C. platystoma Penard, 1890 | + | + |
| 54 C. hirsuta Deflandre, 1929 | + | + |
| 55 C. discoides (Penard, 1890) | + | + |
| 56 C. kurakchayensis Snegovaya et Alekperov, 2005 | + | + |
| 57 C. marupiformis (Wall, 1864) | + | + |
| 58 C. cassis (Wallich, 1864) | + | + |
| 59 C. constricta (Ehrenberg, 1838) Deflandre, 1929 | + | + |
| 60 C. hemisphaerica (Bernard, 1879) | + | + |
| 61 C. minuta Deflandre, 1929 | + | + |
| 62 C. sylvatica (Deflandre, 1929) | + | + |
| 63 C. sylvatica v. minor Bonn. et Thom, 1955 | + | + |
| 64 C. mirabilis Bartoli 1940 | + | + |
| 65 C. compressa van Oye 1948 | + | + |
| 66 C. percolabilensis Dekhtyar 1994 | + | + |
| 67 Centropyxis pileformis Snegovaya et Alekperov, 2009 | + | + |
| 68 C. trigonostoma Snegovaya et Alekperov, 2009 | + | + |
| 69 C. pectinata Snegovaya et Alekperov, 2009 | + | + |
| 70 C. laevigata Penard, 1890 | + | + |
| 71 Oopyxis lenkoranica Snegovaya et Alekperov, 2010 | + | + |
| 72 P. minuta Bonn., 1959 | + | + |
| 73 Plagioptyxis minuta phanerostoma Bonnet, 1959 | + | + |
| 74 P. declivis Thomas, 1958 | + | + |
| 75 P. intermedia Bonn., 1959 | + | + |
| 76 P. penardi Thomas, 1958 | + | + |
| 77 P. penardi v. oblenta Bonn., 1959 | + | + |
| 78 Planhoogenraadia gracilis Bonn. et Gomez-Sanchez, 1984 | + | + |
| 79 Ellipsopyxis lanternei Bonnet, 1974 | + | + |
| 80 Bullinularia indica Def., 1952 | + | + |
| 81 Geopyxella sylvicola Bonn. et Thom., 1955 | + | + |
| 82 Hoogenraadia cryptostoma Gauthier-Liévre et Thomas, 1958 | + | + |

Fam. Diffugiiidae Awerintzew, 1906

| | + | + | + |
| 83 Diffugia acuminata Ehrenberg, 1838 | + | + | + |
| 84 D. acuminata v. curvata Cash, 1909 | + | + | + |
| 85 Diffugia acuminata v. inflata Penard, 1899 | + | + | + |
| 86 D. acuminata v. magna Deflandre, 1926 | + | + | + |
Table 2. (Continuation)

| Taxonomic composition | After publications by Snegovaya, Alekperov and Tahirova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1939, 1942); Veyisig (1930, 1931, 1939, 1940) |
|-----------------------|---------------------------------------------------------------|------------------|-------------------------------------------------------------|
| 87 D. ampullula Playfair, 1918 | +                                                           |                  |                                                             |
| 88 D. claviformis Penard, 1899 | +                                                           |                  |                                                             |
| 89 D. microclaviformes (Kourova, 1925) | +                                                       |                  |                                                             |
| 90 D. corona Wallich, 1864 | +                                                           |                  |                                                             |
| 91 D. corona v. ecornis Gauthier-Liévre et Thomas, 1958 | +                                                          |                  |                                                             |
| 92 D. corona v. tuberculata Vuchetich, 1973 | +                                                         |                  |                                                             |
| 93 D. difficilis Thomas, 1972 | +                                                          |                  |                                                             |
| 94 D. rubescens Penard, 1902 | +                                                          |                  |                                                             |
| 95 D. distenta Ogden, 1983 | +                                                          |                  |                                                             |
| 96 D. elegans Penard, 1890 | +                                                           |                  |                                                             |
| 97 D. elegans teres Penard, 1899 | +                                                          |                  |                                                             |
| 98 D. capreolata Penard, 1902 | +                                                          |                  |                                                             |
| 99 D. viscidula Penard, 1902 | +                                                          |                  |                                                             |
| 100 D. giganteacuminata Chardez, 1958 | +                                                        |                  |                                                             |
| 101 D. globulosa Dujardin, 1837 | +                                                          |                  |                                                             |
| 102 D. globularis Wallich, 1864 | +                                                          |                  |                                                             |
| 103 D. pressule Snegovaya et Alekperov, 2010 | +                                                         |                  |                                                             |
| 104 D. girkanica Snegovaya, Alekperov, 2010 | +                                                         |                  |                                                             |
| 105 D. mamillaris Penard, 1893 | +                                                          |                  |                                                             |
| 106 D. gramen Penard, 1902 | +                                                          |                  |                                                             |
| 107 D. tuberculata Wallich, 1864 | +                                                          |                  |                                                             |
| 108 D. scapesium Penard, 1899 | +                                                          |                  |                                                             |
| 109 D. sarissa Li Sun Tai, 1931 | +                                                          |                  |                                                             |
| 110 D. limnetica Penard, 1902 | +                                                          |                  |                                                             |
| 111 D. lineatis (Penard, 1890) Gauthier-Liévre et Thomas, 1958 | +                                                        |                  |                                                             |
| 112 D. lithophiles Penard, 1902 | +                                                          |                  |                                                             |
| 113 D. bipartis Godeanu, 1972 | +                                                          |                  |                                                             |
| 114 D. declotrei Godeanu, 1972 | +                                                          |                  |                                                             |
| 115 D. litophila Gauthier-Liévre et Thomas, 1958 | +                                                        |                  |                                                             |
| 116 D. munitormis Gauthier-Liévre et Thomas, 1958 | +                                                        |                  |                                                             |
| 117 D. oviformis Cash, 1909 | +                                                          |                  |                                                             |
| 118 D. penardi Hopkinson, 1909 | +                                                          |                  |                                                             |
| 119 D. pyriformis Perty, 1849 | +                                                          |                  |                                                             |
| 120 D. urceolata Carter, 1864 | +                                                          |                  |                                                             |
| 121 D. pristis Penard, 1902 | +                                                          |                  |                                                             |
| 122 D. hydrostatica Zacharias, 1897 | +                                                        |                  |                                                             |
| 123 D. bidens Penard, 1902 | +                                                          |                  |                                                             |
| 124 D. oblonga Ehrenberg, 1838 | +                                                          |                  |                                                             |
| 125 D. oblonga v. angusticollis Stepanek, 1952 | +                                                        |                  |                                                             |
| 126 D. oblonga v. nodosa Leidy, 1879 | +                                                        |                  |                                                             |
| 127 D. lanceolata Penard, 1890 | +                                                          |                  |                                                             |
| 128 D. lobostoma Leidy, 1879 | +                                                          |                  |                                                             |
| 129 D. lobostoma multilobata Gauthier-Liévre et Thomas, 1958 | +                                                        |                  |                                                             |
| 130 D. sapnakeranica Snegovaya et Alekperov, 2010 | +                                                        |                  |                                                             |
| 131 D. cratera Leidy, 1877 | +                                                          |                  |                                                             |
Table 2. (Continuation)

| Taxonomic composition | After publications by Snegovaya, Alekperov and Tahirova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1938, 1939, 1942); Veysig (1930, 1931, 1939, 1940) |
|-----------------------|-------------------------------------------------|-------------------|--------------------------------------------------|
| 132 D. sarissa Li Sun Tai, 1931 | + | | |
| 133 D. alekperovi Snegovaya et Tahirova, 2015 | + | | |
| 134 D. brevicola Cash et Hopkinson, 1909 | + | | |
| 135 D. lucida Penard, 1890 | + | + | |
| 136 D. avellana Penard, 1890 | + | | |
| 137 D. bacillararum Perty, 1849 | + | | |
| 138 D. bryophila (Penard, 1902) | + | | |
| 139 D. acutissima Deflandre, 1931 | + | | |
| 140 D. acutissimella Chardez, 1985 | + | | |
| 141 D. smilion Thomas, 1953 | + | | |
| 142 D. longicollis (Gassowsky, 1936) | + | | |
| 143 D. baculosa Schonborn, 1966 | + | | |
| 144 D. pseudoclaviformis Snegovaya et Alekperov, 2010 | + | | |
| 145 D. pycniformis Snegovaya et Alekperov, 2010 | + | | |
| 146 D. ventriclosa Deflandre, 1926 | + | | |
| 147 D. labiose Wallies, 1919 | + | | |
| 148 D. pulex Penard, 1902 | + | | |
| 149 D. varians Penard, 1902 | + | | |
| 150 D. bicornata Erit, 1964 | + | | |
| 151 D. echinulata Penard, 1911 | + | | |
| 152 D. consticta Ehrenberg, 1841 | + | | |
| 153 D. guttula Godeanu, 1972 | + | | |
| 154 D. ogdenii Snegovaya et Alekperov, 2005 | + | | |
| 155 D. armatostoma Snegovaya et Alekperov, 2005 | + | | |
| 156 D. rotiferiformis Snegovaya et Alekperov, 2005 | + | | |
| 157 D. caucasica Snegovaya et Alekperov, 2005 | + | | |
| 158 D. variformis Snegovaya et Alekperov, 2005 | + | | |
| 159 D. bifurcata Snegovaya et Alekperov, 2005 | + | | |
| 160 D. azerbaijanica Snegovaya et Alekperov, 2005 | + | | |
| 161 D. crucistoma Snegovaya et Alekperov, 2009 | + | | |
| 162 D. immemorata Snegovaya et Alekperov, 2009 | + | | |
| 163 D. khachmacica Snegovaya et Alekperov, 2009 | + | | |
| 164 D. elongata Penard, 1905 | + | | |
| 165 D. lenkoranica Snegovaya et Alekperov, 2010 | + | | |
| 166 D. hanaki Stepank, 1967 | + | | |
| 167 D. talyshica Snegovaya et Alekperov, 2010 | + | | |
| 168 Pentagonia azerbaijanica Snegovaya et Alekperov, 2010 | + | | |
| 169 Pontigulasia compressoidea Jung, 1942 | + | | |
| 170 P. bigibbosa Penard, 1902 | + | | |
| 171 P. compressa (Carter 1864) | + | + | |
| 172 P. breviotitis Snegovaya et Alekperov, 2005 | + | | |
| 173 P. spectabilis Penard, 1902 | + | | |
| 174 P. elsa (Penard, 1893) | + | | |
| 175 P. incisa Rhumbier, 1896 | + | + | |
| 176 Lagenodifflugia bryophila (Penard, 1902) | + | | |
| 177 Schwabia terricola Bonnet et Thomas, 1955 | + | | |
Table 2. (Continuation)

| Taxonomic composition                                                                 | After publications by Snegovaya, Alekperov and Tahiurova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1938, 1939, 1942); Veyesig (1930, 1931, 1939, 1940) |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------|
| 178 S. sphaerica Snegovaya et Alekperov, 2005                                           | +                                                                     |                     |                                                                              |
| 179 Cucurbitella mespiliformis v. africana Gauthier-Liévre et Thomas, 1960             | +                                                                    |                     |                                                                              |
| 180 Ptelecyamoeba stenostoma Snegovaya et Alekperov, 2005                             | +                                                                    |                     |                                                                              |
| 181 Armatodifflugia ceratophora Snegovaya et Alekperov, 2005                           | +                                                                    |                     |                                                                              |
| 182 A. cuneata Snegovaya, Alekperov, 2005                                              | +                                                                    |                     |                                                                              |
| 183 Protocucurbitella danubialis Zivkovic, 1976                                        | +                                                                    |                     |                                                                              |
| 184 Zivkovicia compressa (Carter, 1864) Ogden, 1987                                   | +                                                                    |                     |                                                                              |
| Fam. Nebelidae Taranek, 1882                                                          |                                                                       |                     |                                                                              |
| 185 Nebela collaris (Ehrenberg, 1848)                                                  | +                                                                    | +                   |                                                                              |
| 186 N. penardiana Deflandre, 1936                                                      | +                                                                    |                     |                                                                              |
| 187 N. militaris Penard, 1890                                                         | +                                                                    | +                   |                                                                              |
| 188 N. galeata Penard, 1890                                                           | +                                                                    | +                   |                                                                              |
| 189 N. barbata Leidy, 1874                                                            | +                                                                    |                     |                                                                              |
| 190 N. bohemica Taranek, 1882                                                        | +                                                                    |                     |                                                                              |
| 191 N. pulcherrime Averintzew, 1907                                                     | +                                                                    |                     |                                                                              |
| 192 N. caudata Leidy, 1879                                                            | +                                                                    |                     |                                                                              |
| 193 N. tubulata Brown, 1911                                                           | +                                                                    |                     |                                                                              |
| 194 N. wailesi Deflandre, 1936                                                        | +                                                                    |                     |                                                                              |
| Fam. Hyalospheniidae Schultze, 1877                                                   |                                                                       |                     |                                                                              |
| 195 Hyalosphenia subflava Cash et Hopkinson, 1909                                       | +                                                                    |                     |                                                                              |
| 196 H. lageniformis Penard, 1902                                                      | +                                                                    |                     |                                                                              |
| Fam. Lesquereusidae Jung, 1942                                                        |                                                                       |                     |                                                                              |
| 197 Lesquereusia spiralis Schlumberger, 1849                                          | +                                                                    |                     |                                                                              |
| 198 L. modesta Rhumbler, 1895                                                        | +                                                                    | +                   |                                                                              |
| 199 L. gibbosa Thomas et Gauthier-Liévre, 1959                                        | +                                                                    |                     |                                                                              |
| 200 L. nabranica Snegovaya et Alekperov, 2009                                         | +                                                                    |                     |                                                                              |
| 201 L. contorta Snegovaya et Alekperov, 2009                                          | +                                                                    |                     |                                                                              |
| 202 L. azerbajanica Snegovaya et Alekperov, 2009                                      | +                                                                    |                     |                                                                              |
| 203 L. macrolabiata Snegovaya et Alekperov, 2009                                      | +                                                                    |                     |                                                                              |
| 204 L. epistemium Penard, 1902                                                       | +                                                                    |                     |                                                                              |
| 205 Quadrula symmetrica (Wallich, 1863)                                               | +                                                                    | +                   |                                                                              |
| 206 Fabalesquereusia graniformis Snegovaya et Alekperov, 2005                         | +                                                                    |                     |                                                                              |
| 207 F. compressa Snegovaya et Alekperov, 2005                                         | +                                                                    |                     |                                                                              |
| 208 F. linearis Snegovaya et Alekperov, 2005                                          | +                                                                    |                     |                                                                              |
| Fam. Heleoperidae Jung, 1942                                                          |                                                                       |                     |                                                                              |
| 209 Heleopera petricola Leidy, 1879                                                    | +                                                                    |                     |                                                                              |
| 210 H. petricola v. amethystea Penard, 1902                                            | +                                                                    |                     |                                                                              |
| 211 H. penardi Bonnet et Thomas, 1955                                                  | +                                                                    |                     |                                                                              |
| 212 H. sylvatica Penard, 1890                                                        | +                                                                    |                     |                                                                              |
| Fam. Phryganellidae Jung, 1942                                                        |                                                                       |                     |                                                                              |
| 213 Phryganella nidulus Penard, 1902                                                  | +                                                                    |                     |                                                                              |
| 214 P. acropodia (Hertwig et Lesser, 1874)                                            | +                                                                    |                     |                                                                              |
| 215 P. paradoxa Penard, 1902                                                          | +                                                                    |                     |                                                                              |
### Table 2. (Continuation)

| Taxonomic composition | After publications by Snegovaya, Alekperov and Tahirova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1938, 1939, 1942); Veysig (1930, 1931, 1939, 1940) |
|-----------------------|---------------------------------------------------------------|--------------------|-------------------------------------------------------------------|
| Fam. Cryptodifflugiidae Jung, 1942 | | | |
| 216 Cryptodifflugia compressa Penard, 1902 | + | + | + |
| 217 C. oviformis Penard, 1890 | + | | + |
| 218 C. apiculata Cash, 1904 | + | | + |
| 219 C. voigti Schmidt, 1926 | | | |
| Rhizaria Cavalier-Smith, 2002 | | | |
| 220 Pseudodifflugia gracilis Schlumberger, 1849 | + | | |
| 221 P. gracilis v. terricola Bonnet et Thomas, 1960 | | + | |
| 222 P. magna Snegovaya et Alekperov, 2010 | + | | |
| 223 Pseudowentzitzea calcicola Bonnet, 1959 | | + | |
| 224 Lenkorania microstoma (Playfair, 1918) | | | + |
| Fam. Gromiidae Claparede et Lachman, 1861 | | | |
| 225 Gromia fluviatilis Dujardin, 1855 | + | | |
| Fam. Euglyphidae Wallich, 1864 | | | |
| 226 Euglypha acanthophora (Ehrenberg, 1841) | + | + | |
| 227 E. tuberculata Dujardin, 1841 | + | | + |
| 228 E. filifera Penard, 1890 | + | | + |
| 229 E. aspera Penard, 1899 | + | | + |
| 230 E. laevis (Ehrenberg, 1832) | + | | + |
| 231 E. rotunda Wailes, 1911 | + | + | |
| 232 E. ciliata (Ehrenberg, 1848) | + | | |
| 233 E. ciliata f. glabra Wailes, 1915 | + | | |
| 234 E. compressa f. glabra Wailes, 1915 | + | | |
| 235 E. cristata Leidy, 1879 | + | | |
| 236 E. cristata f. decora Jung, 1942 | + | | |
| 237 E. strigosa f. glabra Wailes, 1915 | + | | + |
| 238 E. mucronata Leidy, 1878 | | + | |
| 239 E. alveolata Dujardin, 1841 | | + | |
| 240 Assulina muscorum Greeff, 1888 | + | | |
| 241 A. Scandinavica Penard, 1890 | + | | |
| 242 A. minor Penard, 1890 | | | + |
| 243 Placocista spinosa (Carter, 1865) | + | | + |
| 244 Tracheleuglypha dentata (Moniez, 1888) | + | | |
| 245 T. acola Bonnet et Thomas, 1955 | | | + |
| Fam. Trinematidae Hoogenraad et Groot, 1940 | | | |
| 246 Trinema enchelys (Ehrenberg, 1838) | + | + | |
| 247 T. penardi Thomas et Chardez, 1958 | + | + | |
| 248 T. verrucosum France, 1914 | + | | |
| 249 T. complanatum Penard, 1890 | + | + | |
| 250 T. linearis Penard, 1890 | + | | |
| 251 Corythion dubium Taranek, 1881 | + | | |
| Fam. Cyphoderiidae de Saedeleer, 1934 | | | |
| 252 Cyphoderia ampula (Ehrenberg, 1840) | + | + | |
| 253 C. ampula papillata Wailes et Penard, 1911 | + | | |
| 254 C. ventricosa Chardez, 1991 | + | | |
| 255 C. trochus v. amphoralis Penard, 1899 | + | | |
Table 2. (Continuation)

| Taxonomic composition | After publications by Snegovaya, Alekperov and Tahirova (2000–2016) | After Zaidov (1995) | After Alizade (1934, 1938, 1939, 1942); Veysig (1930, 1931, 1939, 1940) |
|-----------------------|---------------------------------------------------------------|-------------------|--------------------------------------------------|
| 256                   | *C. laevis* Penard, 1902                                       |                   | +                                                |
| **Fam. Shamkiriidae Snegovaya et Alekperov, 2005** |                                                                |                   |                                                  |
| 257                   | *Shamkiriella convoluta* Snegovaya et Alekperov, 2005          | +                 |                                                  |
| 258                   | *S. reticulata* Snegovaya et Alekperov, 2005                   | +                 |                                                  |
| 259                   | *S. phimatophora* Snegovaya et Alekperov, 2005                 | +                 |                                                  |
| 260                   | *S. turanica* Snegovaya et Alekperov, 2009                     | +                 |                                                  |
| 261                   | *Nabranella brevis* Snegovaya et Alekperov, 2009               | +                 |                                                  |
| **Fam. Bipseudostomatidae Snegovaya et Alekperov, 2005** |                                                                |                   |                                                  |
| 262                   | *Bipseudostomatella bifurcata* Snegovaya et Alekperov, 2005    |                   | +                                                |
| 263                   | *B. gracilis* Snegovaya et Alekperov, 2005                     |                   | +                                                |
| 264                   | *B. cornuta* Snegovaya et Alekperov, 2005                      |                   | +                                                |
| 265                   | *Gomocollariella ranaformis* Snegovaya et Alekperov, 2005      |                   | +                                                |

*A. artocrea* Leidy, 1876

Distribution: water reservoirs of the Lankaran Natural Area (Popov, 1951; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Alizade, 1934; Alekperov, Snegovaya, 2000; Snegovaya, 2001), the rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), the reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

*A. stellaris* Perty, 1849

Distribution: the Julbeger Lake, Gazakh, Agdash district reservoirs, reservoirs of the Kura fish-breeding station (Veysig, 1940; Alizade, 1942).

*A. megastoma* Penard, 1926

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

*A. megastoma arcuata* Deflandre, 1928

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

*A. dentata* Ehrenberg, 1832

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. excavata* Cunningham, 1919

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

*A. discoides* Ehrenberg, 1872

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2016), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. hemispherica* Perty, 1852

Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1939; Snegovaya, Alekperov, 2010; Tahirova, 2016), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

*A. bathystoma* Deflandre, 1928

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

*A. catinus* Penard, 1890

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).
Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015a), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. crenulata* Deflandre, 1928
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. atava* Collin, 1914
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), soils of the North-Western Azerbaijan (Zaidov, 1995).

*A. rotundata* Playfair, 1918
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. rotundata* v. *aplanata* Def., 1928
Distribution: soils of the North-Western Azer- baijan (Zaidov, 1995).

*A. brasiliensis* Cunha, 1913
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. mitrata* Leidy, 1876
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*A. costata* Ehrenberg, 1847
Distribution: water reservoir in Lankaran (Veysig, 1939), lake on the bank of the river Gyrdymanchay, Lakes Pirgadir, Alagelyar (Lachin district), Jilligel Lake, Bichineg reservoirs (Nakhichevan) (Alizade, 1940), water reservoirs in the Evlakh district (Veysig, 1940).

*Pyxidicula operculata* (Agardh, 1827) Ehrenberg, 1838
Distribution: rice fields of Lankaran (Veysig, 1940).

Suborder Diffugiina Bovee, 1985
**Fam. Cyclopyxidae Schonborn, 1889**
**Cyclopyxis kahli** Deflandre, 1929
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a,b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

*C. kahli* v. *cyclostoma* Bonnet et Thomas, 1959
Distribution: soils of the North-Western Azerbai- jan (Zaidov, 1995).

*C. kahli* v. *grandis* Chibisova, 1967
Distribution: soils of the North-Western Azer- baijan (Zaidov, 1995).

*C. putens* Thomas, 1960
Distribution: soils of the North-Western Azerbai- jan (Zaidov, 1995).

*C. intermedia* Kufferath, 1932
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

*C. euristoma* Deflandre, 1929
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

*C. penardi* Deflandre, 1929
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; fresh- water reservoirs of the Absheron Peninsula (Snego- vaya, 2001; Alekperov, Snegovaya, 2000).

*C. arcelloides* Penard, 1902
Distribution: freshwater reservoirs of the Ab- sheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*C. ambiguus* Bonnet et Thomas, 1960
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014b), soils of the North-Western Azerbaijan (Zaidov, 1995).
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Trigonopyxis arcula (Leidy, 1879)
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

Fam. Centropyxidae Deflandre, 1953
Centropyxis aculeata Ehrenberg, 1838
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1939, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), mountain water bodies (Alizade, 1940), water reservoirs in Nakhichevan (Alizade, 1938), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Western Azerbaijan (Veysig, 1931; Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. aculeata v. oblonga Deflandre, 1929
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

C. spinosa Cash, 1905
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater bodies of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. deliculata Penard, 1902
Distribution: the rice fields of Lankaran (Veysig, 1939).

C. aerophila Deflandre, 1929
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. elongata (Penard, 1890)
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. gibba Deflandre, 1929
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

C. platystoma Penard, 1890
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).
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C. hirsuta Deflandre, 1929  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. discoides (Penard, 1890)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. kurakchayensis Snegovaya et Alekperov, 2005  
This species was described in 2005 from the Kyurekchay River (Western Azerbaijan).  
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

C. marsupiformis (Wallich, 1864)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. cassis (Wallich, 1864)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. constricta (Ehrenberg, 1838)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. hemisphaerica (Bernard, 1879)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010) freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. minuta Deflandre, 1929  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. sylvatica (Deflandre, 1929)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

C. sylvatica v. minor Bonnet et Thomas, 1955  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

C. mirabilis Bartoš, 1940  
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

C. compressa van Oye, 1948  
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

C. percolabiensis Dekhtyar, 1994  
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

C. pileformis Snegovaya et Alekperov, 2009  
This species was described from reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).  
Distribution: reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. trigonostoma Snegovaya et Alekperov, 2009  
This species was described from reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).  
Distribution: reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

C. pectinata Snegovaya et Alekperov, 2009  
This species was described from reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).  
Distribution: reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).
C. laevigata Penard, 1890
Distribution: the rice field of Lankaran (Veysig, 1940), freshwater reservoirs of the Absheron Peninsula (Snegovaya, Alekperov, 2000).

Oopysis lenkoranica Snegovaya et Alekperov, 2010
This species was described from the Lankaran Natural Area.
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010b).

Plagiopyxis minuta Bonn., 1959
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

P. minuta phanerostoma Bonnet, 1959
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

P. declivis Thomas, 1958
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), soils of the North-Western Azerbaijan (Zaidov, 1995).

P. intermedia Bonn., 1959
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

P. penardi Thomas, 1958
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

P. penardi v. oblonga Bonn., 1959
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

Planhoogenraadia gracilis Bonn. et Comez-Sanchez, 1984
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

Ellipsopyxis lamottei Bonnet, 1974
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

Bullinularia indica Deflandre, 1952
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

Geopyxella sylvicola Bonnet et Thomas, 1955
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

Hoogenraadia cryptostoma Gauthier-Lièvre et Thomas, 1958
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

Fam. Diffugiidae Awerintzew, 1906
Difflugia acuminata Ehrenberg, 1838
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b; 2015b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, Alekperov, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), the Hajikabul Lake (Alizade, 1942), feeding basins of the Kura fish-breeding station (Alizade, 1942), lake near the Girdimanchay River (Alizade, 1942), water reservoirs of the Western Azerbaijan (Veysig, 1931).

D. acuminata v. curvata Cash, 1909
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010) freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

Difflugia acuminata v. inflata Penard, 1899
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

D. acuminata v. magna Deflandre, 1926
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

D. ampullula Playfair, 1918
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b; 2015b).

D. claviformis Penard, 1899
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b; 2015b), freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

D. microclaviformis Kourova, 1925
Distribution: water reservoirs of the Lankaran Natural Area (Tahirova, 2014a, b).
**D. corona** Wallich, 1864

Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1939; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b; 2015b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), water reservoirs of the Evlakh district, Nakhichevan and Ismailly districts (Veysig, 1940).

**D. corona** v. *ecornis* Gauthier-Lievre et Thomas, 1958

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. corona** v. *tuberculata* Vuchetich, 1973

Distribution: water reservoirs of the Lankaran Natural Area (Tahirova, 2014b).

**D. difficilis** Thomas, 1972

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. rubescens** Penard, 1902

Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

**D. distenda** Ogden, 1983

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015a, b).

**D. elegans** Penard, 1890

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b, 2015a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), soils of the North-Western Azerbaijan (Zaidov, 1995).

**D. elegans teres** Penard, 1899

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. capreolata** Penard, 1902

Distribution: lake reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), water reservoirs of the Western Azerbaijan (Snegovaya, Alekperov, 2005; Veysig, 1931).

**D. viscidula** Penard, 1902

Distribution: the Lake Goygol (Veysig, 1931).

**D. giganteacuminata** Chardez, 1958

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b).

**D. globulosa** Dujardin, 1837

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b, 2015a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), reservoirs of the North-Western Azerbaijan (Zaidov, 1995).

**D. globularis** Wallich, 1864

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2016), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. pressula** Snegovaya et Alekperov, 2010

This species was described in 2010 from a forest water body in the Lankaran Natural Area.

**D. girkanica** Snegovaya et Alekperov, 2010

This species was described in 2010 from a forest water reservoir in the Lankaran Natural Area.
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010b).

**D. mamillaris** Penard, 1893
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b; Veysig, 1940).

**D. gramen** Penard, 1902
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b, 2015b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), soils of the North-Western Azerbaijan (Zaidov, 1995).

**D. tuberculata** Wallich, 1864
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b, 2015b).

**D. scalpellum** Penard, 1899
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015a, b; Veysig, 1940), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. sarissa** Li Sun Tai, 1931
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), the Goygol Lake (Western Azerbaijan) (Veysig, 1931).

**D. limnetica** Penard, 1902
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014b, 2015a, b; Veysig, 1939).

**D. linearis** (Penard, 1890) Gauthier-Liévre et Thomas, 1958
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015a, b).

**D. lithoplites** Penard, 1902
Distribution: the rice field in Lankaran, the Goygol Lake (Veysig, 1940).

**D. bipartis** Godeanu, 1972
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

**D. decloitrei** Godeanu, 1972
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**D. litophila** Gauthier-Liévre et Thomas, 1958
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**D. muriformis** Gauthier-Liévre et Thomas, 1958
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015b), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. oviformis** Cash, 1909
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015b).

**D. penardi** Hopkinson, 1909
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2015a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. pyriformis** Perty, 1849
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2015a, b), water reservoir in Ismailly district (Alizade, 1939), the Goygol Lake (Veysig, 1931), spring near Khachmaz (Veysig, 1940), soils of the Northwest Azerbaijan (Zaidov, 1995).

**D. urceolata** Carter, 1864
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), water reservoir in Ismailly district (Alizade, 1939), the Goygol Lake (Veysig, 1931), spring near Khachmaz (Veysig, 1940), soils of the Northwest Azerbaijan (Zaidov, 1995).

**D. pristis** Penard, 1902
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Abshe-
ron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

D. hydrostatica Zacharias, 1897
Distribution: water reservoirs of the Western Azerbaijan (Alizade, 1940).

D. bidens Penard, 1902
Distribution: the rice fields of the Lankaran (Veysig, 1939).

D. oblonga Ehrenberg, 1838
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

D. oblonga v. angusticollis Stepanek, 1952
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

D. oblonga v. nodosa Leidy, 1879
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

D. lanceolata Penard, 1890
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1939; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

D. pyriformis Ehrenberg, 1838
Distribution: water reservoirs of the Lankaran Natural Area (Tahirova, 2014b), soils of the North-Western Azerbaijan (Zaidov, 1995).

D. lobostoma Leidy, 1879
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940; Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Veysig, 1939; Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

D. lobostoma multilobata Gauthier-Lièvre et Thomas, 1958
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

D. sapnakeranica Snegovaya et Alekperov, 2010
This species was described from water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010, b; Tahirova, 2015a, b). Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2015a, b).

D. cratera Leidy, 1877
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010a, b; Tahirova, 2014a).

D. sarissa Li Sun Tai, 1931
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), reservoirs of the Northern Azerbaijan (Veysig, 1939; Snegovaya, Alekperov, 2009).

D. alekperovi Snegovaya et Tahirova, 2015
This species was described from water reservoirs of the Lankaran Natural Area (Snegovaya, Tahirova, 2015). It has not been observed yet in other regions.

D. brevicola Cash et Hopkinson, 1909
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010a, b; Tahirova, 2014a, b), reservoirs of the Northern Azerbaijan (Veysig, 1939; Snegovaya, Alekperov, 2009).

D. lucida Penard, 1890
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

D. avellana Penard, 1890
Distribution: freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).
**D. bacillariarum** Perty, 1849
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. bryophila** (Penard, 1902)
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. acutissima** Deflandre, 1931
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. acutisimella** Chardez, 1985
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010); rivers of Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. smilion** Thomas, 1953
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

**D. longicollis** (Gassowsky, 1936)
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. baculosa** Schonborn, 1966
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010). This species was described from water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010). It has not been observed yet in other regions.

**D. ventricolosa** Deflandre, 1926
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**D. labiosa** Wailes, 1919
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010); rivers of Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009).

**D. pulex** Penard, 1902
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**D. varians** Penard, 1902
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001).

**D. biconvata** Ertl, 1964
Distribution: water reservoirs of Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirrova, 2016).

**D. echinulata** Penard, 1911
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. constrcta** Ehrenberg, 1841
Distribution: the Goygol Lake (Veysig, 1931), water reservoirs of the Lankaran Natural Area (Popov, 1951).

**D. guttula** Godeanu, 1972
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**D. ogdenii** Snegovaya et Alekperov, 2005
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).
**D. armatostoma** Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. rotiferoformis** Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. caucasica** Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. vermiformis** Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. bifurcata** Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. azerbaijanica** Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**D. crucistoma** Snegovaya et Alekperov, 2009  
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

**D. elongata** Penard, 1905  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**D. lenkoranica** Snegovaya et Alekperov, 2010  
This species was described in reservoirs of the Lankaran Natural Area. It has not been observed yet in other regions (Snegovaya, Alekperov, 2010b).

**D. hanaki Štěpánek, 1967**  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010b).

**D. talyshica** Snegovaya et Alekperov, 2010  
This species was described in reservoirs of the Lankaran Natural Area. It has not been observed yet in other regions (Snegovaya, Alekperov, 2010b).

**Pentagonia azerbaijanica** Snegovaya et Alekperov, 2010  
This species was described in reservoirs of the Lankaran Natural Area. It has not been observed yet in other regions (Snegovaya, Alekperov, 2010b).

**Pentagulasia compressoidea** Jung, 1942  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b, 2015b).

**P. bigibbosa** Penard, 1902  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), water reservoirs of the Lankaran Natural Area (Tahirova, 2016).

**P. compressa** (Carter 1864)  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), water reservoirs of the Lankaran Natural Area (Tahirova, 2016).

**P. breviiottis** Snegovaya et Alekperov, 2005  
This species was described in rivers of the
Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

**P. spectabilis** Penard, 1902

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**P. elisa** (Penard, 1893)

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**P. incisa** Rhumblier, 1896

Distribution: the rice fields in the Lankaran (Veysig, 1939), soils of the North-Western Azerbaijan (Zaidov, 1995).

**Lagenodifflugia bryophila** (Penard, 1902)

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Alekperov, Snegovaya, 2000; Snegovaya, 2001), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**Schwabia terricola** Bonnet et Thomas, 1955

Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

**S. sphaerica** Snegovaya et Alekperov, 2005

This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

**Cucurbitella mespiliformis v. africana** Gauthier-Lièvre et Thomas 1960

Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

**Pelecyamoeba stenostoma** Snegovaya et Alekperov, 2005

This species was described in the rivers of Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

**Armatodifflugia ceratophora** Snegovaya et Alekperov, 2005

This species is described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

**Armatodifflugia cuneata** Snegovaya et Alekperov, 2005

This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

**Protocucurbitella danubialis** Živkovic, 1976

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010; Tahirova, 2014a, b).

**Živkovicia compressa** (Carter, 1864)

Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

**Fam. Nebelidae** Taranek, 1882

**Nebela collaris** (Ehrenberg, 1848)

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

**N. penardiana** Deflandre, 1936

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**N. militaris** Penard, 1890

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

**N. galeata** Penard, 1890

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rice fields of Lankaran (Veysig, 1939).

**N. barbata** Leidy, 1874

Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**N. bohemica** Taranek, 1882

Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

**N. pulcherrima** Awerintzew, 1907

Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940).
*N. caudata* Leidy, 1879  
Distribution: water reservoirs of the Lankaran Natural Area (Veysig, 1940).

*N. tubulata* Brown, 1911  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

*N. wailesi* Deflandre, 1936  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

*Hyalosphenia subflava* Cash et Hopkinson, 1909  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

*Lesquereusia spiralis* Schlumberger, 1849  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), water reservoirs of the Lankaran Natural Area (Tahirova, 2014a, b).

*L. modesta* Rhumbler, 1895  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), soils of the North-Western Azerbaijan (Zaidov, 1995).

*L. gibbosa* Thomas et Gauthier-Lièvre 1959  
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

*L. nabranica* Snegovaya et Alekperov, 2009  
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

*L. contorta* Snegovaya et Alekperov, 2009  
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

*L. azerbaijanica* Snegovaya et Alekperov, 2009  
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

*Azerbaijanica macrolobata* Snegovaya et Alekperov, 2009  
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

*L. episotum* Penard, 1902  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

*Quadrulella symmetrica* (Wallich, 1863)  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

*Quadrulella graniformis* Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*F. compressa* Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*F. linearis* Snegovaya et Alekperov, 2005  
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*H. nabranica* Snegovaya et Alekperov, 2009  
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

*H. petricola* Leidy, 1879  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010b), soils of the North-Western Azerbaijan (Zaidov, 1995).

*H. petricola v. amethystea* Penard, 1902  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

*H. penardi* Bonnet et Thomas, 1955  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).
**H. sylvatica** Penard, 1890  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

Suborder Phryganellina Bovee, 1985  
Fam. Phryganellidae Jung, 1942  
**Phryganella nidulus** Penard, 1902  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**P. acropodia** (Hertwig et Lesser, 1874)  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

**P. paradoxa** Penard, 1902  
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995), rice fields of the Lankaran (Veylig, 1939).

**Euglyphidae Wallich, 1864**  
**Euglypha acanthophora** (Ehrenberg, 1841)  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

**E. tuberculata** Dujardin, 1841  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

**E. filifera** Penard, 1890  
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

**E. laevis** (Ehrenberg, 1832)  
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov et Snegovaya, 2000).
baijan (Zaidov, 1995), water reservoirs of Lankaran (Popov, 1951).

\textit{E. rotunda} Wailes, 1911 \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov and Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{E. ciliata} (Ehrenberg, 1848) \\
Distribution: the rice fields of Lankaran (Veysig, 1939).

\textit{E. ciliata} f. glabra Wailes, 1915 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{E. compressa} f. glabra Wailes, 1915 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{E. cristata} Leidy, 1879 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{E. cristata} f. decorata Jung, 1942 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{E. strigosa} f. glabra Wailes, 1915 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{E. mucronata} Leidy, 1878 \\
Distribution: water reservoirs of the Altyagach settlement (Veysig, 1940).

\textit{E. alveolata} Dujardin, 1841 \\
Distribution: the rice fields of the Lankaran (Veysig, 1940).

\textit{Assulina muscorum} Greeff, 1888 \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{A. scandinavica} Penard, 1890 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{A. minor} Penard, 1890 \\
Distribution: ponds in tree hollows, in Lankaran (Popov, 1951).

\textit{Placocista spinosa} (Carter, 1865) \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{T. acola} Bonnet et Thomas, 1955 \\
Distribution: soils of the North-Western Azerbaijan (Zaidov, 1995).

Fam. Trinematidae Hoogenraad et Groot, 1940 \\
\textit{Trinema enchelys} (Ehrenberg, 1838) \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{T. penardi} Thomas et Chardez, 1958 \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{T. verrucosum} France, 1914 \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

\textit{T. complanatum} Penard, 1890 \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), soils of the North-Western Azerbaijan (Zaidov, 1995).

\textit{T. linearis} Penard, 1890 \\
Distribution: the reservoirs of Northern Azerbaijan (Snegovaya, Alekperov, 2009).

\textit{Corythion dubium} Taranek, 1881 \\
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).
Fam. Cyphoderiidae de Saedeleer, 1934
*Cyphoderia ampula* (Ehrenberg, 1840)
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010, Tahirova, 2015a), freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000), rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005), reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009), soils of the North-Western Azerbaijan (Zaidov, 1995).

*C. ampula papillata* Wailes et Penard, 1911
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

*C. ventricosa* Chardez, 1991
Distribution: water reservoirs of the Lankaran Natural Area (Snegovaya, Alekperov, 2010).

*C. trochus v. amphoralis* Penard, 1899
Distribution: rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005).

*C. laevis* Penard, 1902
Distribution: freshwater reservoirs of the Absheron Peninsula (Snegovaya, 2001; Alekperov, Snegovaya, 2000).

Fam. Shamkiriidae Snegovaya et Alekperov, 2005
*Shamkiriella convoluta* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*S. reticulata* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*S. phimatophora* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*S. turanica* Snegovaya et Alekperov, 2009
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

*Nabranella brevis* Snegovaya et Alekperov, 2009
This species was described in reservoirs of the Northern Azerbaijan (Snegovaya, Alekperov, 2009). It has not been observed yet in other regions.

Fam. Bipseudostomatidae Snegovaya et Alekperov, 2005
*Bipseudostomatella bifurcata* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*B. gracilis* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*B. cornuta* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

*Gomocollariella ranaformis* Snegovaya et Alekperov, 2005
This species was described in rivers of the Western Azerbaijan (Snegovaya, Alekperov, 2005). It has not been observed yet in other regions.

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Fig. 3. Some testate amoebae of Azerbaijan (scanning electron microscopy). 1 - *Arcella vulgaris* Ehrenberg, 1830; 2 - *Difflugia girkanica* Snegovaya et Alekperov, 2010; 3 - *Difflugia alekperovi* Snegovaya et Tahirova, 2015; 4 - *Centropyxis marsupiformis* Deflandre, 1929; 5 - *Difflugia capreolata* Penard, 1902; 6 - *D. brevicola* Cash et Hopkinson, 1909; 7 - *D. sapnakeranica* Snegovaya et Alekperov, 2010; 8 - *D. litophila* Gauthier-Lièvre et Thomas, 1958; 9 - *D. mammillaris* Penard, 1893; 10 - *D. gramen* Penard, 1902; 11 - *D. tuberculata* (Wallich, 1864); 12 - *D. urceolata* Carter, 1864; 13 - *D. elegans* Gauthier-Lièvre et Thomas, 1958; 14 - *Lesquereusia spiralis* Bütschli, 1888; 15 - *Cyphoderia ampulla* Leidy, 1879; 16 - *Euglypha compressa* Carter, 1864.
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