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Zooplankton (Copepoda, Rotifera, Cladocera and Protozoa: Amoeba Testacea) from natural lakes of the middle Rio Doce basin, Minas Gerais, Brazil

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Abstract: A list of zooplankton species identified during ten years of studies in the lake system of the middle Rio Doce basin is presented. This lake system integrates the Atlantic Forest biome, a biodiversity hotspot. Three types of studies were achieved by the Brazilian Long Term Ecological Research Program (Brasil-LTER/PELD-UFMG site 4): i) a temporal study (study 1) which sampled four lakes monthly and three lakes twice a year during ten years; ii) a comparative study of limnetic and littoral species composition (study 2) and iii) a spatial study (study 3) that evaluated the species composition of eighteen lakes (eight lakes inside the Rio Doce State Park (RDSP) and ten lakes in its surrounding area) during one year with quarterly sampling. A total of 354 taxa were identified out of which 175 belong to the Rotifera, 95 to the Protozoa (Amoeba Testacea), 55 to Cladocera and 25 to Copepoda. Although many identified species where common in tropical environments, we present new records for the Middle Rio Doce basin. The group of lakes outside the RDSP showed higher exclusive species compared to lakes inside the RDSP. This pattern may be due to higher disturbance intensity and frequency to which the lakes outside RDSP are subjected, being an important factor affecting community structure. These aquatic ecosystems presents more than half of the zooplankton species registered for the Minas Gerais State and is, undoubtedly, one of the Brazil's priorities for conservation, sustaining high diversity in a very small, limited and threatened region.
Keywords: Species list, Atlantic Forest, Freshwater.

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***Resumo*:** Uma lista das espécies de zooplâncton identificadas durante dez anos de estudos no sistema de lagos do médio Rio Doce é apresentada. Este sistema de lagos faz parte do bioma da Mata Atlântica, um hotspot de biodiversidade. Três tipos de estudos foram conduzidos pelo Programa de Pesquisas Ecológicas de Longa Duração (PELD-UFMG site4): i) um estudo temporal, que amostrou quatro lagoas mensalmente e três lagoas semestralmente durante dez anos; ii) um estudo comparativo entre a composição de espécies da região limnética e litorânea e iii) um estudo espacial que avaliou a composição de espécies de dezoito lagoas (oito dentro dos limites do Parque Estadual do Rio Doce (PERD) e dez na sua região do entorno) durante um ano com amostragens trimestrais. Um total de 354 taxa foram identificados sendo 175 pertencentes a Rotifera, 95 a Protozoa (Amoeba Testacea), 55 a Cladocera e 25 a Copepoda. Embora muitas espécies identificadas sejam comuns a ambientes tropicais, são apresentados novos registros para a bacia do Médio Rio Doce. O grupo de lagos fora do PERD apresentou uma maior riqueza exclusiva comparado ao grupo de lagoas dentro do PERD. Este padrão pode ser devido a maiores frequência e intensidade de distúrbios aos quais as lagoas fora do PERD estão sujeitas, já que este é um fator importante que afeta a estruturação de comunidades. Este ecossistema aquático apresenta mais da metade das espécies de zooplâncton já registradas para o Estado de Minas Gerais e é, sem dúvida, uma das prioridades do Brasil para a conservação, sustentando uma alta diversidade em uma região muito pequena, limitada e ameaçada.
Palavras-chave: Lista de espécies, Mata Altântica, Água Doce.

Introduction

Brazil is known as the most mega diverse country (Myers et al. 2000). The Atlantic Forest is classified as a biodiversity hotspot, as it is one of the most deforested and threatened amongst the Brazilian biomes that still maintains a high species diversity (Fonseca 1985, Mittermeier et al. 1998). Furthermore, inland waters have become critical ecosystems for conservation, since they bear a high biodiversity in confined spaces, threatened by humanity's need for water (Dudgeon et al. 2006). The middle Rio Doce lake system is a lacustrine complex formed by c. 300 natural water bodies amidst the Atlantic Forest biome. Considering its regional importance, in 1944, a state decree created the Rio Doce State Park (RDSP) which is the largest continuous Atlantic Forest fragment in Minas Gerais state, recently incorporated to the Ramsar sites for preservation of wetlands (RAMSAR 2010).

Despite having its integrity protected by law, Gontijo & Britto (1997) identified 26 types of human impacts occurring both internally and externally to the Park's boundaries. Among the impacts within the park the illegal hunting and fishing, introduction of exotic species (mollusks, fishes and even a primate) and tourism on the shore grounds of Lake Dom Helvécio deserve special attention. Concerning the latter, some modifications in the species abundance and functioning were related to anthropic interferences (Maia-Barbosa et al. 2010). Some examples of impacts in the vicinity of the Park, which have been cited by the authors, are the extensive Eucalyptus spp. monocrops - mainly used as charcoal in the steel plants - the extensive farming and abandoned pasture lands, and a fast growing urbanization that produces sewage and garbage which, not rarely, reaches the Park limits.

Since the 1970's, the plankton diversity of this lake system has been cataloged (e.g. Barbosa & Tundisi 1980). After the implementation of the LTER program in November 1999 (LTER/PELD-UFMG site 4), samplings became systematic until late 2010. The Brazilian site 4 ILTER project aims to evaluate the impacts of anthropogenic activity on local and regional biodiversity assuming that the RDSP has been threatened mainly by two factors: forest fragmentation and introduction of exotic species.

With the objective to catalog the existing zooplankton biodiversity of the middle Rio Doce lake system, we present in this study the limnologic features and the species list of the zooplankton community of eighteen lakes (eight inside the RDSP and ten in its surrounding). The objective was assessed with three interrelated studies conducted in site 4 by the ILTER/PELD program:

Study 1: Long term (1999-2009) monitoring of limnological variables and plankton community in the limnetic region of seven lakes;

Study 2: Plankton studies conducted in the littoral zone of two lakes with samplings during rainy and dry periods;

Study 3: Large spatial scale monitoring of limnological variables and plankton community in the limnetic region of eighteen lakes with quarterly samplings during one year.

Material and Methods

1. *Study site*

The naturally barred lake system is located in the middle part of the Rio Doce basin (19°29'24" S - 19°48'18" S, 42°28'18" W - 42°38'30" W) and was formed by tectonic and sedimentary mechanisms during late Pleistocene (Mello et al. 1999) (Figure 1). The region has a marked seasonality exhibiting two distinct periods: the dry period (May-August), with low temperature and precipitation and the rainy period (September to April), with high values of temperature and precipitation, allowing to classify the region as tropical semi-humid with mesothermal characteristics (Tundisi 1997). The lakes within the RDSP are currently protected from recent human impacts, despite still suffering with past impacts such as the introduction of exotic fish species (Latini & Petrere 2004). Most lakes outside the park had their surrounding natural forests replaced by Eucalyptus spp. plantations and some lakes are used for recreation, fishing clubs and local projects for net cage fish cultures (e.g. Jacaré and Verde lakes).

2. *Data Collection and Analysis*

The zooplankton community was sampled at a fixed point in the pelagic zone filtering 200 liters of lake water through a 68 µm plankton net using a hydraulic pump at depths defined by the Secchi disk assumed as corresponding to 10% of incident light (Cole, 1983). In shallow lakes (depth < 3m) samples were collected at the sub-surface, at the Secchi depth and at 0.5 m from the bottom. For the study in the littoral region of Patos lake ten liters of water were filtered through a 45 µm plankton net with a bucket. Different macrophyte banks were evaluated and six samples were collected two meters distant from each other along a transect parallel to the lake's margin (Table 1). The littoral region of Dom Helvécio lake was also sampled and the results presented by Maia-Barbosa et al. (2008). All collected samples were immediately transferred into plastic bottles, stained with rose bengal and preserved with 4% neutral formaldehyde solution. The identification of the species was made under a light microscope at 200x to 1000x magnification, referring to the relevant taxonomic literature (e.g. Koste 1978, Koste & Robertson 1983, Reid 1985, Matsumura-Tundisi 1986, Dussart 1987, Segers 1995, Segers & Dumont 1995, Smirnov 1996, Elmoor-Loureiro 1997, Rocha 1998, Gomes-Souza 2008, checked for synonyms and redescriptions).

Water temperature, dissolved oxygen and pH were measured each time with a multiprobe Horiba U-22 sensor. Water samples were also collected for total phosphorus quantification, according to Mackereth et al. (1978). The samplings were authorized by the Minas Gerais State Forest Institute (IEF-MG, license number 005/07).

Using data from study 3, where the sample effort was the same for all 18 lakes (4 months and 3 depths = 12 samples), we calculated the 95% percentile confidence interval for the medians of total phosphorus by nonparametric bootstrap with 10000 replications (Efron

& Tibshirani 1993). Sample-Based Rarefaction Curves were also constructed with biological data from study 3 using the exact calculations of the average and standard deviation of species richness for combinations of samples (Gotelli & Cowell 2001)

The zooplankton samples are stored in the Laboratório de Limnologia, Ecotoxicologia e Ecologia Aquática of the Instituto de Ciências Biológicas of the Universidade Federal de Minas Gerais, Brazil.

Results and discussion

The sampled lakes in this study are listed in Table 2 with geographic coordinates and some lake characteristics. The identified species list is presented in Table 3. Concerning the data from study 3 and according to trophic index limits based on total phosphorus concentration proposed by Lamparelli (2004), the majority of the lakes were classified as mesotrophic although some exhibit tendency to eutrophy such as lakes Pimenta, Santa Helena, Barra,

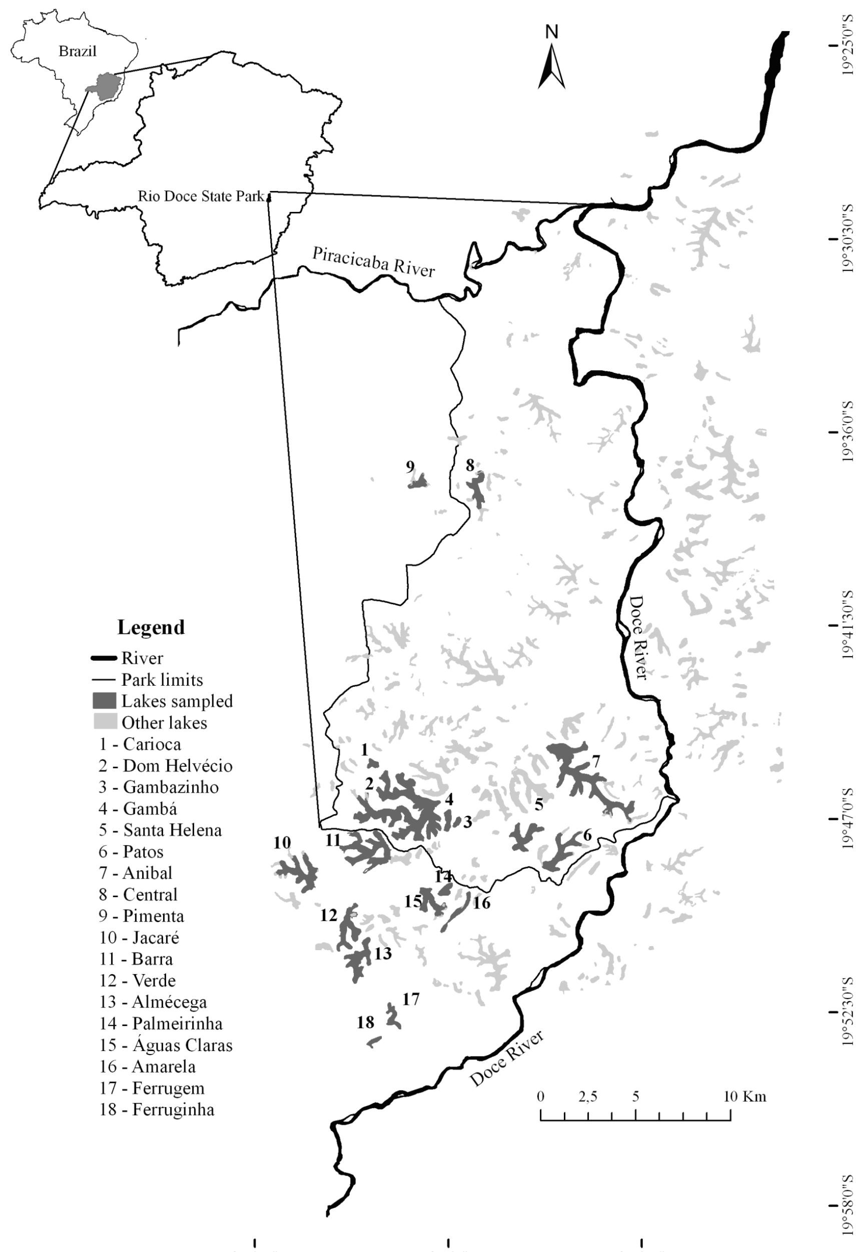

Figure 1: The lake system of the middle Rio Doce basin. The sampled lakes are shaded.

Table1: Methodologies used in the three types of studies conducted in lakes of the RDSP and surroundings.

Study	Sampled lakes	Lake Compartment	Month/Year	Sampling frequency	Methodology	Evaluated groups
Temporal Sampling (Study 1)	Carioca (CA) and Dom Helvécio (DH)	Limnetic	From January 2001 to December 2010	Monthly	200 liters filtered with a 68 µm plankton net	Copepoda, Rotifera and Cladocera
	Gambazinho (GN) and Jacaré (JA)		From January 2002 to December 2010			
	Águas Claras (AC) and Palmeirinha (PA)					
	Amarela (AM)		From January 2002 to December 2010	Bimonthly		Copepoda, Rotifera, Cladocera and Amoeba Testacea
Littoral and Limnetic comparison (Study 2)	Patos (PT)	Littoral and Limnetic	August 2008 and January 2009	Seasonal	12 sampling points in the littoral, 10 liters filtered with a 45 µm plankton net. One sampling point in the limnetic region, vertical tow with a 45 µm plankton net.	Copepoda, Rotifera, Cladocera and Amoeba Testacea
Spatial Sampling (Study 3)	Lakes within DRSP: Aníbal (AN), Carioca (CA), Central (CE), Dom Helvécio (DH), Gambá (GA), Gambazinho (GN), Patos (PT) and Santa Helena (SH). Lakes outside DRSP: Águas Claras (AC), Almécega (AL), Barra (BA), Ferrugem (FE), Ferruginha (FN), Jacaré (JA), Palmeirinha (PA), Pimenta (PI) and Verde (VE)	Limnetic	August and November 2007 and February and May 2008	Quaterly	200 liters filtered with a 68 µm plankton net	Copepoda, Rotifera and Cladocera

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Table 2: Lakes' initials, names, geographic coordinates of sampling points, altitude, lakes' area, margin development index (DL), mean depth at the sampling point in the four periods sampled in study 3 (August and November 2007 and February and May 2008) and lake location in relation to Rio Doce State Park boundaries.

Lake initials	Lake name	Sampling point coordinates	Sampling point altitude (m)	Lake area (Km^2)	DL	Mean depth at the sampling point (m)	Location according to RDSP limits
AC	Águas Claras	S 19º 49´06,9´´ W 042º 35´42,5´´	254	0.62	2.24	9.1	Outside
AL	Almécega	S 19º 51´25,4´´ W 042º 37´31,9´´	268	0.92	2.44	6.4	Outside
AM	Amarela	S 19º 49´23,1´´ W 042º 34´28,7´´	250	0.20	1.82	1.9	Outside
AN	Aníbal	S 19º 46´47,1´´ W 042º 29´54,5´´	237	2.75	4.29	5.1	Inside
BA	Barra	S 19º 48´11,1´´ W 042º 37´43,6´´	249	1.12	3.45	6.4	Outside
CA	Carioca	S 19º 45´26,0´´ W 042º 37´06,2´´	270	0.12	1.28	9.4	Inside
CE	Central	S 19º 37´39,0´´ W 042º 34´12,5´´	264	0.51	2.03	4.5	Inside
DH	Dom Helvécio	S 19º 46´55,7´´ W 042º 35´28,9´´	257	3.81	4.93	27.5	Inside
FE	Ferrugem	S 19º 52´39,0´´ W 042º 36´34,3´´	270	0.34	2.01	3.3	Outside
FN	Ferruginha	S 19º 53´17,5´´ W 042º 36´59,4´´	273	0.13	1.61	3.9	Outside
GA	Gambá	S 19º 47´15,1´´ W 042º 35´01,0´´	209	0.23	1.40	11.0	Inside
GN	Gambazinho	S 19º 47´07,7´´ W 042º 34´45,5´´	260	0.09	1.13	9.3	Inside
JA	Jacaré	S 19º 48´37,8´´ W 042º 38´57,0´´	269	1.05	2.90	7.6	Outside
PA	Palmeirinha	S 19º 49´41,8´´ W 042º 36´25,4´´	271	0.20	1.28	5.6	Outside
PI	Pimenta	S 19º 37´27,4´´ W 042º 35´44,3´´	263	0.22	1.63	3.1	Outside
PT	Patos	S 19º 48´19,9´´ W 042º 32´12,7´´	257	0.86	2.83	7.3	Within
SH	Santa Helena	S 19º 47´48,8´´ W 042º 33´04,7´´	262	0.68	2.42	9.0	Inside
VE	Verde	S 19º 49´55,2´´ W 042º 37´54,1´´	274	0.75	2.29	11.3	Outside

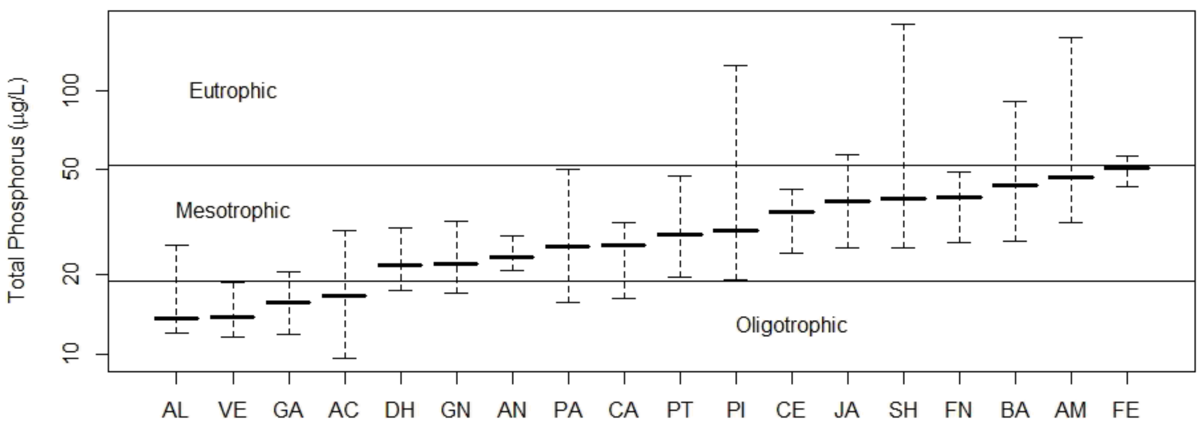

Figure 2: Median and 95% percentilic interval (whiskers) of the total phosphorus concentration median in the 18 lakes.

Amarela and Ferrugem (Figure 2). Only lake Verde was considered strictly oligotrophic. Water temperature has an amplitude of 10°C between dry and rainy periods (from 22°C to 32°C, respectively), dissolved oxygen concentrations showed a mean of 5.8 mg/L, varying from 9.4 mg/L in the sub-surface to complete anoxia at some depths greater than five meters and pH varied between 8.6 and 5. The lakes' area varied from 0.09 to 3.81Km^2 with a mean of 0.81Km^2 (Table 2).

In a large sample effort Tundisi & Saijo (1997) evaluated the zooplankton biodiversity of 13 lakes of this system in November 1985 and July 1987. The authors reported 16 species of Rotifera, 9 of Cladocera and 7 of Copepoda. Moreto (2001) evaluated the limnetic and littoral region of 5 lakes of this system and identified 39 species of Rotifera, 13 of Cladocera and 4 of Copepoda. Considering the three studies described in our study, a total of 354 zooplankton species were identified out of which 175 belonging to Rotifera, 55 to Cladocera, 25 to Copepoda and 95 to Protozooa (Amoeba Testacea) (Table 3). The species Itura aurita (Ehrenberg, 1830), Ploesoma truncatum (Levander, 1894), Biapertura affinis (Alona ossiani Sinev, 1998) and Brachionus caudatus Barrois & Daday, 1894 were reported only by Moreto (2001). Argyrodiaptomus furcatus (Sars, 1901) and Scolodiaptomus corderoi Wright, 1936 were recorded in lake Dom Helvécio in the 80's by Tundisi & Saijo (1997), but these species have never been reported since that time, being considered locally extinct, probably due to non-native fish species introduction (Pinto-Coelho et al. 2008). The other species cited only by Tundisi & Saijo (1997) and Moreto (2001) are considered synonyms, redescriptions or misidentifications as described hereafter. Mesocyclops brasilianus Kiefer, 1933 may be M. meridianus (Silva & Matsumura-Tundisi 2011) as both species are restricted to the southern hemisphere, despite the latter having a wider distribution (Silva 2008), Conochiloides caenobasis Skorikov, 1914 was redescribed as C. (Conochiloides) coenobasis (Skorikov, 1914), Monostyla bulla Gosse, 1851 as Lecane bulla (Gosse, 1851) and Brachionus patulus Müller, 1786 as Plationus patulus (Müller, 1786). Disparalona sp. may be Disparalona dadayi redescribed as Alonella dadayi Birge, 1910, Macrothrix laticornis (Jurine, 1820) may be Macrothrix squamosa Sars, 1901, a Neotropical species and Keratella quadrata may be K. tropica as both are cosmopolitan species although the former is restricted to cold climates (Segers & Smet 2008). The species Synchaeta stylata was cited by Moreto (2001) but in our study the individual was identified only until genus level. Lecane gillardi armata Koste, 1978 is a synonym for Lecane armata and Proales giganthea (Glascott, 1893) is probably a misidentification because this specie is not recorded in Neotropical regions. Alona quadrata is not a valid species so its report is considered as uncertain.

The checklist presented by the Project BIOTA/FAPESP in São Paulo state reported 277 Rotifera species from 90 water bodies, 12 Copepoda Calanoida species from 250 water bodies, 39 species of Copepoda Cyclopoida from 207 water bodies and 96 Cladocera species from 300 water bodies (Matsumura-Tundisi & Tundisi 2011, Silva & Matsumura-Tundisi 2011, Rocha et al 2011, Soares et al. 2011). In the upper Paraná River flood plain 541 species were reported from 36 aquatic environments from 2000 to 2007 (Lansac-Tôha,et al. 2009). Comparing the richness here reported we can see that the middle Rio Doce sustains high zooplankton diversity in a very small and limited region.

The dominance of rotifer species is a common pattern in most of the cited environments and can be explained by its typical opportunistic life history with parthenogenetic reproduction and short life cycles combined with the ability to produce eggs that survive desiccation, resulting in great resistance and resilience to disturbances (Allan 1976). Within the rotifers, four families contributed significantly to the species richness: Lecanidae, with 43 species of the genus Lecane, Brachionidae, with 22 species (8 species of Brachionus), Lepadellidae, with 21 species (14 Lepadella species) and Trichocercidae, with 17 Trichocerca species. Moreto (2001) also reported

Lecanidae and Brachionidae as the families with the largest number of species, although there was great contribution of other species. The following species were widespread, occurring in at least 15 of the 18 sampled lakes: Anuraeopsis spp. Brachionus angularis Gosse, 1851, B. falcatus Zacharias, 1898, B. mirus Daday, 1905, Keratella americana Carlin, 1943, Lecane bulla (Gosse, 1851), L. lunaris (Ehrenberg, 1832), Trichocerca pusilla (Jennings, 1903), Hexarthra intermedia (Wiszniewski, 1929), Conochilus spp., Ptygura libera Myers, 1934 and bdelloid rotifers. Most of these species are known to be cosmopolitan, and the association of Lecane, Brachionus, Keratella and Trichocerca is regarded as typical in tropical regions as well as the dominance of Brachionidae and Lecanidae families reported by other authors (Paggi & José de Paggi 1990, Bozelli 1992, Sendacz 1993, Bonecker et al. 1994, Lansac-Toha et al. 1997).

Bosmina tubicen Brehm, 1953 and Diaphanosoma birgei Korineck, 1981 were the most common cladoceran species found in fifteen and fourteen lakes respectively. Among the copepods, Thermocyclops minutus (Lowndes, 1934) was present in all eighteen lakes and Notodiaptomus isabelae (Wright S., 1936) wasn't recorded only in three lakes (Amarela, Pimenta and Santa Helena). The occurrence of two exotic species should also be noted: Kellicottia bostoniensis (Rousselet, 1908) (Rotifera) and Mesocyclops ogunnus Onabamiro, 1957 (Copepoda), but these species were recorded only once and may not have established themselves.

The protozoan group was represented by 95 Testacea species and 4 ciliates species, although no specific sampling procedure was employed. The recorded species were collected in littoral zones of two lakes (Dom Helvécio and Patos) and in Amarela lake. Difflugidae, with 39 species (26 Difflugia species) and Arcellidae, with 22 species (15 Arcela species) were the families with the highest richness. Compared with the checklist provided by Regali-Seleghim et al. (2011), where 84 taxa of Testacea were reported from 75 aquatic environments in São Paulo state, the richness reported in our work is very expressive and it might be underestimated because only three lakes were evaluated. Lake Amarela alone had a richness of 74 species, with predominance of Difflugia (21 species), Arcella (15 species) and Centropyxis (13 species). The families of these three genera are described as dominant in littoral environments.

Considering the results from study 3, where the 18 lakes were sampled with the same effort, from a total of 95 identified taxa, 29 taxa were recorded only in lakes outside the park limits and 7 taxa were recorded only in lakes inside the park limits. This greater richness of the group of lakes outside the park can be clearly visualized with Sample-Based Rarefaction Curves plot (Figure 3). Most of the exclusive richness found in lakes outside the park is due to Amarela lake, which is small and shallow (area < 30ha and depth < 3m) with a well-developed macrophyte community. But even if we remove Amarela lake from the outside group of lakes we can see that this group still has a higher richness compared to lakes inside the park (Figure 4). This pattern is probably due to higher disturbance intensity and frequency to which the lakes outside the park limits are subjected, thus preventing lakes to reach a stable state where competitive exclusion may take place.

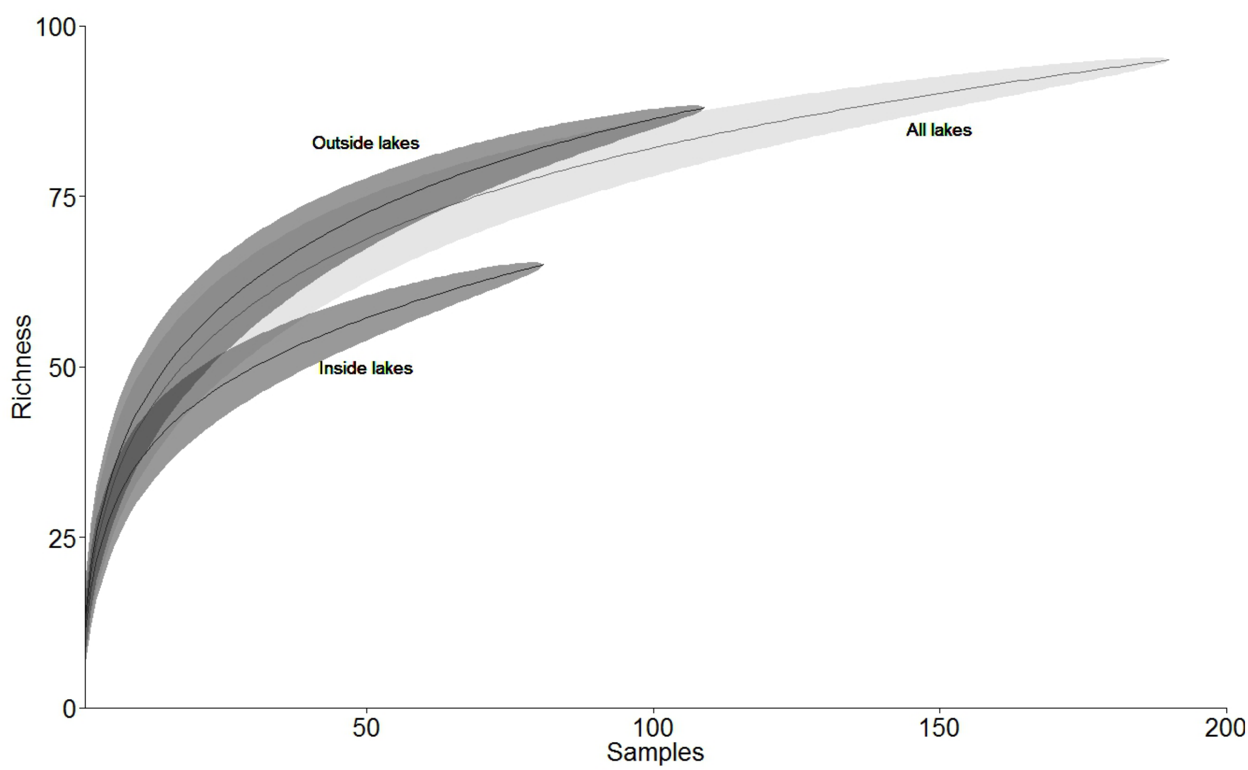

Figure3: Sample-Based rarefaction Curves with all the samples from study 3 (All lakes), and divided between lakes inside the

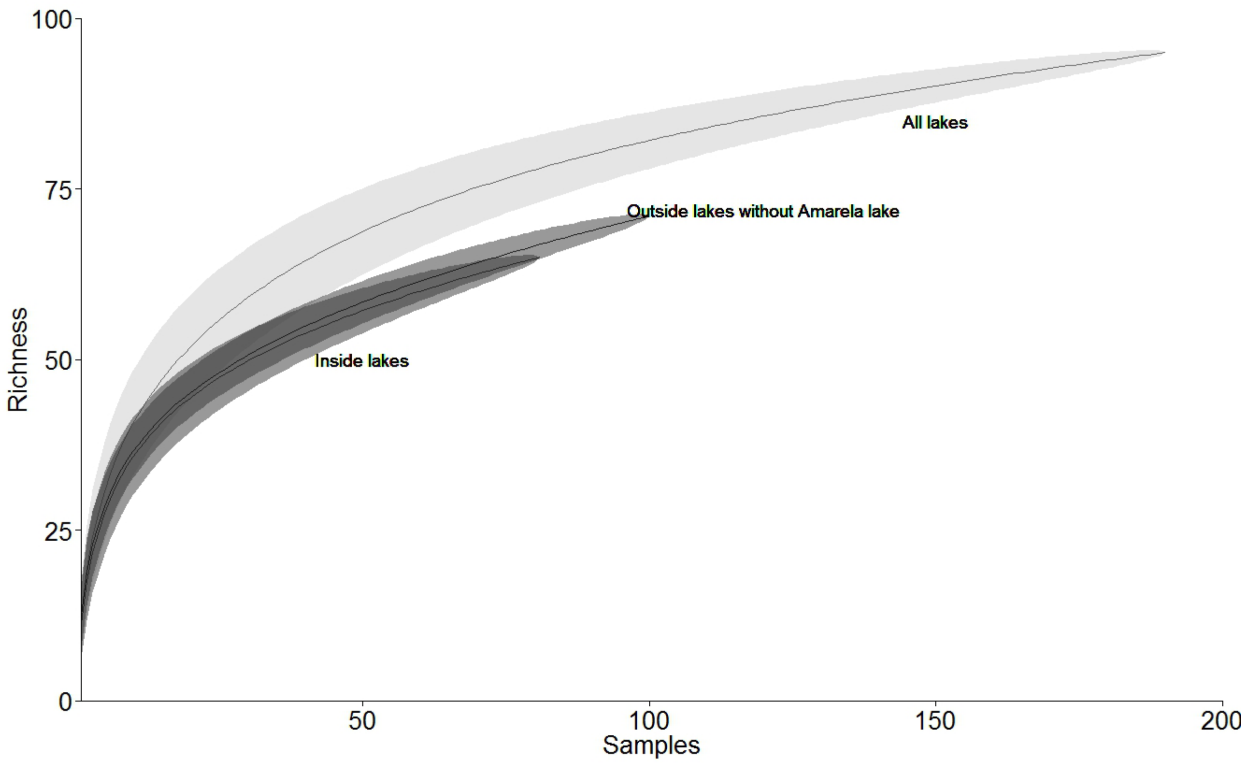

Figure4: Sample-Based rarefaction Curves with all the samples from study 3 (All lakes), and divided between lakes inside the RDSP (Inside lakes) and lakes outside the RDSP without Amarela lake (Outside lakes without Amarela lake).

Study 2, conducted in the littoral and limnetic regions of Patos lake included 41 new taxa to the previous species list for the region. The most representative group was Rotifera (21 species), followed by Amoeba Testacea (13 species), Cladocera (5 species) and Copepoda (2 species). The species Lepadella minoruoides Koste and Robertson, 1983, Ptygura furcillata (Kellicott, 1889) and Lecane eutarsa Harring and Myers, 1926 with previous records only in the Amazon Basin, were identified in the littoral region of Patos lake.

The comparison between different types of studies confirms the importance of long-term biodiversity studies. Regarding only the Copepoda, Cladocera and Rotifera species from the seven lakes sampled in study 1 (long-term monthly samples) and comparing them to the richness of the same seven lakes in study 3 (spatial sampling with quarterly samplings during one year), 77 species were common to both studies, 6 species were recorded only in study 3 and 127 species only in study 1. The importance of littoral zones must also be pointed out, since all new records for the state of Minas Gerais were identified in samples collected in this region.

An incomplete survey on the zooplankton diversity reported 551 zooplankton species for Minas Gerais state, 151 Protozoa, 300 Rotifera, 68 Cladocera, 30 Copepoda and 2 of insect larvae (Eskinazi-Sant'Anna et al. 2005) and another recent study updated the Cladocera group up to 94 species (Santos-Wisniewski 2010). Although these data show a substantial richness, they may be underestimated owing to the lack of information from some major basins of the state, such as Jequitinhonha, Paranaíba, and Grande and from some groups, such as Protozoa. The data published on Brazil's freshwater zooplankton biodiversity accounts for 457 Rotifera species (34% recorded in RDSP), 112 Cladocera species (49% recorded in RDSP) and 196 Copepoda species (13% recorded in RDSP) (Ismael et al. 1999). For the neotropical biogeographic region 682 Rotifera species (25% recorded in RDSP) are reported, 186 Cladocera species (29% recorded in RDSP) and 561 Copepoda species (4 % recorded in RDSP) (Boxshall & Defaye 2008, Forró et al. 2008, Segers 2008). The high richness of zooplankton species in RDSP lakes and surrounding region (less than 0.01% of Brazil's area) draws attention to regional as well as nationwide relevance of this system to aquatic biodiversity.

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Table 3: List of zooplankton species from 18 lakes of the middle Rio Doce basin, Minas Gerais, Brazil. * Data from Maia-Barbosa et al. (2008)

	Lakes Inside PERD										Lakes OutsidePERD									
	AN	CA	CE	DH		GA	GN	PT		SH	AC	AL	AM	BA	FE	FN	JA	PA	PI	VE
	Lim	Lim	Lim	Lim	Lit*	Lim	Lim	Lim	Lit	Lim	Lim	Lim	Lim	Lim	Lim	Lim	Lim	Lim	Lim	Lim
COPEPODA																				
Harpacticoida																				
Harpacticoida NI												1	1				1			1
Família Canthocamptidae																				
Attheyella fuhrmani Thieband, 1914					1															
Elaphoidella sp					1															
Família Parastenocarididae																				
Potamocaris sp.				1									1							
Cyclopoida																				
Família Cyclopidae																				
Ectocyclops herbsti Dussart, 1984					1				1											
Ectocyclops rubescens Brady, 1904					1				1				1							
Haplocyclops sp													1							
Homocyclops ater (Herrick, 1882)					1															
Macrocyclops albidus (Jurine, 1820)					1															
Mesocyclops longisetus (Thiébaud, 1914)					1								1							
Mesocyclops meridianus (Kiefer, 1926)		1			1				1		1		1							
Mesocyclops ogunnus Onabamiro, 1957				1	1				1											
Mesocyclops sp.	1		1	1			1	1		1		1			1	1		1	1	1
Metacyclops sp.				1											1					
Microcyclops alius Kiefer, 1935					1				1											
Microcyclops anceps (Richard, 1897)		1			1		1	1	1		1		1				1	1		
Microcyclops ceibaensis (Marsh, 1919)				1					1				1							
Microcyclops finitimus Dussart, 1984									1											
Neutrocyclops brevifurca (Lowndes, 1934)					1								1							
Paracyclops chiltoni (Thomson G.M., 1883)				1	1								1							
Thermocyclops minutus (Lowndes, 1934)	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1
Tropocyclops prasinus meridionalis (Kiefer, 1931)		1		1	1		1		1		1	1	1				1	1		1
Calanoida																				
Família Diaptomidae																				
Notodiaptomus cearensis (Wright S., 1936)								1	1											
Notodiaptomus dubius Dussart & Matsumura-Tundisi, 1985													1							
Notodiaptomus isabelae (Wright S., 1936)	1	1	1	1	1	1	1	1			1	1		1	1	1	1	1		1
subtotal	**3**	**5**	**3**	**9**	**16**	**2**	**5**	**5**	**10**	**2**	**5**	**5**	**13**	**2**	**4**	**3**	**5**	**5**	**2**	**5**
CLADOCERA																				
Família Bosminidae																				
Bosmina hagmanni Stingelin, 1904	1	1		1	1		1	1	1		1	1	1	1			1	1		1
Bosmina freyi De Melo & Hebert, 1994		1		1			1													

Bosmina tubicen Brehm, 1953	1	1		1	1	1	1	1	1	1	1	1	1	1		1	1	1		1
Bosminopsis deitersi Richard, 1895		1		1	1		1		1	1	1	1	1	1			1	1		1
Família Chydoridae																				
Alona dentifera (Sars, 1901)													1							
Alona glabra Sars, 1901					1								1							
Alona guttata Sars,1862		1			1				1				1							
Alona intermedia Sars, 1862													1							
Alona verrucosa Sars, 1901				1	1				1				1							
Alona spp.							1	1			1		1	1		1	1	1	1	1
Alonella clathratula Sars, 1896					1															
Alonella dadayi Birge, 1910		1			1		1	1	1				1				1			
Alonella lineolata Sars, 1901					1															
Chydorus eurynotus Sars, 1901		1			1		1				1		1				1			
Chydorus nitidulus (Sars, 1901)				1					1											
Chydorus pubescens Sars, 1901									1											
Chydorus sphaericus sens. lat.					1								1							
Coronatella monacantha (Sars, 1901)													1							
Coronatella poppei (Richard, 1897)		1			1		1						1							
Dadaya macrops (Daday, 1898)					1				1				1							
Dunhevedia odontoplax Sars, 1901					1				1											
Ephemeroporus barroisi (Richard, 1894)					1		1		1		1		1				1	1		
Ephemeroporus hybridus (Daday, 1905)				1									1							
Ephemeroporus tridentatus (Bergamin, 1931)		1			1				1											
Euryalona brasiliensis Brehm & Thomsen, 1936													1							
Karualona muelleri (Richard, 1897)							1						1							
Leydigia sp.				1									1							
Leydigiopsis curvirostris Sars, 1901					1															
Leydigiopsis ornata Daday, 1905					1															
Notoalona sculpta (Sars, 1901)					1															
Oxyurella ciliata Bergamin, 1931					1															
Família Daphnidae																				
Ceriodaphnia cornuta Sars, 1886		1		1	1			1	1		1	1	1	1			1	1		1
Ceriodaphnia silvestrii Daday, 1902	1	1		1	1		1	1	1		1		1				1	1		
Daphnia ambigua Scourfield, 1947				1							1									
Daphnia gessneri Herbst, 1967		1																		
Daphnia laevis Birge, 1878	1	1		1	1		1	1			1		1				1	1		
Scapholeberis armata (Herrick, 1882)		1			1				1		1		1				1			
Simocephalus mixtus Sars, 1903					1															
Simocephalus serrulatus (Koch, 1841)				1	1				1								1			
Simocephalus sp.													1				1	1		
Família Ilyocryptidae																				
Ilyocryptus spinifer Herrick, 1882	1	1			1		1	1	1	1	1		1	1			1	1		
Família Macrothricidae																				

Grimaldina brazzai Richard, 1892													1							
Macrothrix elegans Sars, 1901					1		1		1				1							
Macrothrix paulensis (Sars, 1900)					1			1	1											
Macrothrix squamosa Sars, 1901		1			1				1				1							
Macrothrix sp.							1						1				1	1		
Streblocerus pygmaeus Sars, 1901				1					1											
Família Moinidae																				
Moina minuta Hansen, 1899		1		1			1				1		1							
Moina reticulata (Daday, 1905)				1					1				1							
Família Sididae																				
Diaphanosoma birgei Korineck, 1981		1		1	1		1	1	1	1	1	1	1	1	1	1	1	1		1
Diaphanosoma brevireme Sars, 1901	1			1				1	1				1	1						
Diaphanosoma fluviatile Hansen, 1899									1											
Diaphanosoma spinulosum Herbst, 1967							1						1							
Pseudosida bidentada Herrick, 1884					1				1				1							
Pseudosida ramosa (Daday, 1904)									1				1							
subtotal	**6**	**18**	**0**	**18**	**32**	**1**	**18**	**11**	**27**	**4**	**14**	**5**	**37**	**8**	**1**	**3**	**16**	**12**	**1**	**6**
ROTIFERA																				
Ordem Ploima																				
Família Asplanchnidae																				
Asplanchna sp.							1		1		1						1	1		
Família Brachionidae																				
Anuraeopsis fissa Gosse, 1851		1			1		1	1	1				1				1			
Anuraeopsis navicula Rousselet, 1911				1	1			1	1		1		1				1			
Anuraeopsis sp.	1	1	1	1		1		1		1	1	1	1	1	1	1	1	1	1	1
Brachionus angularis Gosse, 1851	1	1	1	1	1		1		1	1	1	1	1	1			1	1	1	1
Brachionus bidentatus Anderson, 1889		1		1																
Brachionus calyciflorus Pallas, 1766		1											1					1		
Brachionus dolabratus Harring, 1914	1	1	1	1				1			1	1		1	1		1	1	1	1
Brachionus falcatus Zacharias, 1898	1	1	1	1	1		1	1	1	1	1	1	1	1	1		1	1	1	1
Brachionus forficula Wierzejski, 1891				1																
Brachionus mirus Daday, 1905	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brachionus quadridentatus Hermann, 1783				1	1			1	1		1		1				1	1		
Kellicottia bostoniensis (Rousselet, 1908)		1			1						1						1			
Keratella americana Carlin, 1943	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Keratella cochlearis (Gosse, 1851)	1	1		1	1						1		1			1	1	1		
Keratella lenzi Hauer, 1953		1		1	1			1	1		1		1	1			1	1		
Keratella tropica (Apstein, 1907)		1		1	1		1	1	1	1			1				1	1		
Plationus patulus macracanthus (Daday, 1905)		1											1							
Plationus patulus (Müller, 1786)	1	1		1	1		1	1	1		1		1	1			1	1		1
Platyias leloupi Gillard, 1967									1				1							
Platyias quadricornis (Ehrenberg, 1832)	1	1			1		1	1	1		1		1				1	1		
Platyias quadricornis quadricornis (Ehrenberg, 1832)													1							

Platyias sp.																	1			
Família Dicranophoridae																				
Dicranophorus epicharis Harring & Myers, 1928					1				1											
Dicranophorus sp.							1						1				1			
Família Epiphanidae																				
Epiphanes clavulata (Ehrenberg, 1832)													1							
Família Euchlanidae																				
Dipleuchlanis propatula (Gosse, 1886)		1			1				1				1					1		
Dipleuchlanis sp.							1													
Euchlanis dilatata Ehrenberg, 1832				1	1				1				1							
Euchlanis incisa Carlin, 1939		1			1				1				1				1			
Euchlanis meneta Myers, 1930					1		1						1							
Família Gastropodidae																				
Ascomorpha ecaudis Perty, 1850								1	1		1		1				1	1		
Ascomorpha ovalis (Bergendal, 1892)				1													1			
Ascomorpha saltans Bartsch, 1870					1								1							
Ascomorpha sp.	1	1	1	1				1			1	1	1	1				1	1	1
Gastropus hyptomus (Ehrenberg, 1838)				1									1							
Gastropus stylifer (Imhof, 1891)				1									1							
Família Lecanidae																				
Lecane aculeata (Jakubski, 1912)							1		1											
Lecane arcula Harring, 1914				1	1				1				1							
Lecane armata Thomasson, 1971					1		1		1											
Lecane braziliensis Segers, 1993					1				1											
Lecane bulla (Gosse, 1851)	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lecane clara (Bryce, 1892)				1									1							
Lecane doryssa Harring, 1914					1								1							
Lecane closterocerca (Schmarda, 1859)				1	1		1		1				1							
Lecane cornuta (Müller, 1786)	1				1		1	1	1		1		1	1			1			
Lecane crepida Harring, 1914					1			1	1				1							
Lecane curvicornis (Murray, 1913)	1	1			1		1		1		1		1		1		1	1		
Lecane decipiens (Murray, 1913)				1					1				1							
Lecane elegans Harring, 1914													1							
Lecane eutarsa Harring & Myers, 1926									1											
Lecane flexilis (Gosse, 1886)							1						1							
Lecane furcata (Murray, 1913)					1			1	1				1							
Lecane haliclysta Harring & Myers, 1926					1				1				1							
Lecane hamata (Stokes, 1896)					1		1	1	1				1					1		
Lecane hornemanni (Ehrenberg, 1834)	1				1		1		1				1				1			1
Lecane inconspicua Segers & Dumont, 1993											1									
Lecane inermis (Bryce, 1892)					1								1							
Lecane inopinata Harring & Myers, 1926									1				1							
Lecane leontina (Turner, 1892):		1		1	1		1	1	1		1		1	1			1	1		

Lecane ludwigii (Eckstein, 1883)				1	1		1	1	1				1							1
Lecane luna (Müller, 1776)				1			1		1		1		1				1			
Lecane lunaris (Ehrenberg, 1832)	1	1	1	1	1		1	1	1		1	1	1	1	1	1	1	1	1	1
Lecane monostyla (Daday, 1897)				1	1		1	1	1		1		1				1			
Lecane nana (Murray, 1913)								1	1											
Lecane obtusa (Murray, 1913)					1														1	
Lecane papuana (Murray, 1913)	1						1						1				1			
Lecane rhopalura (Harring & Myers, 1926)								1												
Lecane proiecta Hauer, 1956							1													
Lecane psammophila (Wiszniewski, 1932)					1															
Lecane pusilla Harring, 1914					1								1							
Lecane pyriformis (Daday, 1905)					1				1				1							
Lecane quadridentata (Ehrenberg, 1830)		1			1		1		1		1		1							
Lecane rhytida Harring & Myers, 1926				1					1											
Lecane scutata (Harring & Myers, 1926)							1					1	1	1		1				1
Lecane signifera (Jennings, 1896)		1			1		1		1		1		1							
Lecane stichaea Harring, 1913				1									1							
Lecane stichoclysta Segers, 1993														1						
Lecane subtilis Harring & Myers, 1926									1				1			1				
Lecane uenoi Yamamoto, 1951									1				1							
Família Lepadellidae																				
Colurella obtusa (Gosse, 1886)									1		1									
Colurella sulcata (Stenroos, 1898)				1	1				1											
Colurella uncinata (Müller, 1773)									1				1							
Colurella uncinata bicuspidata (Ehrenberg, 1832)					1				1											
Colurella tesselata									1											
Colurella sp.								1	1		1		1				1			
Lepadella (Heterolepadella) spp.									1											
Lepadella (Lepadella) latusinus (Hilgendorf, 1899)					1				1				1							
Lepadella (Lepadella) cristata (Rousselet, 1893)					1		1		1				1					1		
Lepadella (Lepadella) donneri Koste, 1972				1	1				1											
Lepadella (Lepadella) elongata Koste, 1992									1											
Lepadella (Lepadella) minoruoides Koste & Robertson, 1983								1	1											
Lepadella (Lepadella) ovalis (Müller, 1786)		1			1				1				1				1			
Lepadella (Lepadella) patella (Müller, 1773)					1		1	1	1		1		1				1			
Lepadella (L.) patella oblonga (Ehrenberg, 1834)													1							
Lepadella (Lepadella) quinquecostata (Lucks, 1912)					1															
Lepadella (Lepadella) rhomboides (Gosse, 1886)									1				1					1		
Lepadella (Lepadella) rottenburgi (Lucks, 1912)									1											
Lepadella (Lepadella) triptera (Ehrenberg, 1832)				1	1				1											
Lepadella (Lepadella) spp.	1	1			1		1	1	1		1		1			1	1	1		1
Squatinella lamellaris (Müller, 1786)					1				1				1							
Família Mytilinidae																				

Lophocharis salpina (Ehrenberg, 1834)					1				1											
Mytilina acanthophora Hauer, 1938											1		1				1	1		
Mytilina bisulcata (Lucks, 1912)				1			1	1	1		1		1				1	1		
Mytilina mucronata (Müller, 1773)							1													
Mytilina ventralis (Ehrenberg, 1830)				1			1	1	1				1					1	1	
Mytilina ventralis ventralis (Ehrenberg, 1830)					1								1							
Mytilina sp.		1											1							
Família Notommatidae																				
Cephalodella rotunda Wulfert, 1937													1							
Cephalodella forficula (Ehrenberg, 1830)					1				1				1							
Cephalodella gibba (Ehrenberg, 1830)									1				1							
Cephalodella spp.		1			1		1	1	1		1		1				1			
Monommata aequalis (Ehrenberg, 1830)		1		1																
Monommata sp.					1		1		1				1					1		
Notommata copeus Ehrenberg, 1834									1											
Notommata spp.									1				1							
Resticula sp.									1											
Notommatidae NI		1									1		1					1		
Família Scaridiidae																				
Scaridium longicaudum (Müller, 1786)									1											
Família Synchaetidae																				
Polyarthra dolichoptera Idelson, 1925													1							
Polyarthra sp.	1	1		1	1		1	1	1	1	1		1	1			1	1	1	
Synchaeta sp.													1							
Família Trichocercidae																				
Trichocerca bicristata (Gosse, 1887)							1		1				1							
Trichocerca bidens (Lucks, 1912)									1											
Trichocerca iernis (Gosse, 1887)					1				1				1							
Trichocerca scipio (Gosse, 1886)							1						1							
Trichocerca elongata braziliensis (Murray, 1913)					1				1				1							
Trichocerca cavia (Gosse, 1886)									1											
Trichocerca cylindrica (Imhof, 1891)								1	1											
Trichocerca chattoni (de Beauchamp, 1907)					1			1		1	1									
Trichocerca flagellata Hauer, 1937													1							
Trichocerca macera (Gosse, 1886)													1							
Trichocerca insignis (Herrick, 1885)									1				1							
Trichocerca pusilla (Jennings, 1903)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Trichocerca rattus (Müller, 1776)				1	1		1					1	1					1		
Trichocerca similis (Wierzejski, 1893)					1		1	1	1		1		1	1			1	1		1
Trichocerca stylata (Gosse, 1851)	1	1		1	1					1	1		1	1	1		1		1	1
Trichocerca tenuior (Gosse, 1886)													1							
Trichocerca tigris (Müller, 1786)									1											
Família Trichotriidae																				

Trichotria tetractis (Ehrenberg, 1830)					1		1		1				1				1		1	
Macrochaetus collinsii (Gosse, 1867)					1		1		1				1				1			
Macrochaetus longipes Myers, 1934		1			1				1				1							
Macrochaetus sericus (Thorpe, 1893)				1	1		1		1				1				1	1		
Macrochaetus sp.								1			1	1			1	1	1	1		
Ordem Flosculariaceae																				
Família Conochilidae																				
Conochilus (Conochiloides) coenobasis (Skorikov, 1914)					1				1		1		1				1	1		
Conochilus (Conochiloides) dossuarius Hudson, 1885				1				1	1				1							
Conochilus (Conochiloides) natans (Seligo, 1900)													1							
Conochilus (Conochilus) unicornis Rousselet, 1892				1							1		1				1			
Conochilus sp.	1	1		1			1	1	1	1	1	1	1	1	1	1	1	1		1
Família Filiniidae																				
Filinia longiseta (Ehrenberg, 1834)	1	1		1	1		1			1	1	1	1	1	1		1	1		1
Filinia opoliensis (Zacharias, 1898)				1			1		1									1		
Filinia pejleri Hutchinson, 1964													1							
Filinia terminalis (Plate, 1886)								1	1											
Família Flosculariidae																				
Beauchampiella eudactylota (Gosse, 1886)													1							
Ptygura elsteri Koste, 1972									1											
Ptygura furcillata (Kellicott, 1889)									1											
Ptygura libera Myers, 1934	1	1	1	1		1	1	1		1	1	1	1	1	1	1	1	1	1	1
Ptygura spp.				1				1	1											
Sinantherina sp.					1			1	1				1	1			1			
Família Hexarthridae																				
Hexarthra intermedia (Wiszniewski, 1929)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Família Testudinellidae																				
Testudinella amphora Hauer, 1938					1				1											
Testudinella parva (Ternetz, 1892)							1		1											
Testudinella emarginula (Stenroos, 1898)									1											
Testudinella mucronata (Gosse, 1886)													1							
Testudinella ohlei Koste, 1972					1		1		1											
Testudinella patina (Hermann, 1783)				1	1		1		1				1							
Ordem Collothecaceae																				
Família Collothecidae																				
Collotheca tenuilobata (Anderson, 1889)													1							
Collotheca sp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Subclasse Bdelloidea																				
Bdeloidea	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
Família Philodinidae																				
Dissotrocha aculeata (Ehrenberg, 1832)	1			1	1				1		1		1			1		1	1	
Dissotrocha macrostyla (Ehrenberg, 1838)													1							
Dissotrocha sp.							1				1									

Macrotrachela sp.							1				1									
Rotaria neptunia (Ehrenberg, 1830)													1							
Rotaria sp.							1													
subtotal	**27**	**41**	**14**	**54**	**81**	**7**	**61**	**47**	**109**	**17**	**51**	**19**	**119**	**26**	**17**	**17**	**54**	**45**	**20**	**23**
PROTOZOA																				
Rhizopoda																				
Família Arcellidae																				
Arcella brasiliensis Cunha, 1913													1							
Arcella arenaria Greeff, 1866													1							
Arcella irregularis Motti, 1941													1							
Arcella conica (Playfair, 1917)					1			1	1				1							
Arcella costata Ehrenberg, 1847					1				1				1							
Arcella crenulata Deflandre, 1928													1							
Arcella dentata Ehrenberg, 1838					1															
Arcella discoides Ehrenberg, 1843					1				1				1							
Arcella discoides pseudovulgaris (Deflandre, 1928)								1	1											
Arcella gibbosa Pénard, 1890					1								1							
Arcella hemisphaerica Perty, 1852					1				1				1							
Arcella hemisphaerica undulata Deflandre, 1928								1	1											
Arcella megastoma Pénard, 1902					1				1				1							
Arcella mitrata Leidy, 1879									1											
Arcella mitrata spectabilis Deflandre, 1928													1							
Arcella rota Daday, 1905					1				1											
Arcella rotundata Playfair, 1917													1							
Arcella rotundata aplanata Deflandre, 1928					1				1											
Arcella vulgaris Ehrenberg, 1830					1				1				1							
Arcella vulgaris undulata Deflandre, 1928					1				1											
Arcella vulgaris penardi Deflandre, 1928													1							
Arcella sp.													1				1	1		
Família Centropyxidae																				
Centropyxis aculeata (Ehrenberg, 1838)					1				1				1				1			
Centropyxis aerophila Deflandre, 1929					1								1							
Centropyxis arcelloides Pénard, 1902													1							
Centropyxis delicatula Pénard, 1902					1															
Centropyxis cassis (Wallich, 1864)													1							
Centropyxis constricta (Ehrenberg, 1841)					1								1							
Centropyxis discoides (Pénard, 1890)					1				1				1							
Centropyxis ecornis (Ehrenberg, 1841)					1								1							
Centropyxis gibba Deflandre, 1929					1				1				1							
Centropyxis hirsuta Deflandre, 1929					1				1				1							
Centropyxis minuta Deflandre, 1929					1				1				1							
Centropyxis platystoma Pénard, 1890									1				1							
Centropyxis spinosa Cash, 1905					1				1				1							

Centropyxis spp.					1				1				1					1		
Família Difflugiidae																				
Cucurbitella madagascariensis G. L. & Th, 1980													1							
Cucurbitella mespiliformis Pénard, 1902													1							
Difflugia acuminata Ehrenberg, 1838					1				1				1							
Difflugia acuminata acaulis Perty, 1852									1											
Difflugia bacillariarum Perty, 1849													1							
Difflugia lucida Pénard, 1890													1							
Difflugia congolensis G.L. & Th., 1958													1							
Difflugia corona Wallich, 1864									1				1							
Difflugia curvicaulis Pénard, 1899													1							
Difflugia difficilis Thomas, 1955													1							
Difflugia elegans Pénard, 1890					1				1				1							
Difflugia globularis (Wallich, 1864)													1							
Difflugia gramen Pénard, 1902					1				1				1							
Difflugia kabylica G.L. & Th., 1958									1				1							
Difflugia kempnyi (Stepanek), 1953									1				1							
Difflugia lanceolata Pénard, 1890					1				1											
Difflugia limnetica Levander, 1900								1	1				1							
Difflugia lithophila Pénard, 1902													1							
Difflugia lobostoma Leidy, 1877									1				1							
Difflugia lobostoma globulosa Playfair, 1917									1											
Difflugia lobostoma multilobata G.L. & Thomas, 1958									1											
Difflugia muriformis G.L. & Th., 1958									1				1							
Difflugia oblonga Ehrenberg, 1838					1				1				1							
Difflugia pseudogramen G.L. & Th., 1960													1							
Difflugia sarissa Li Sun Tai, 1931													1							
Difflugia tuberculata (Wallich, 1864)													1							
Difflugia stellastoma Vucetich, 1989					1															
Difflugia spp.									1				1							
Protocucurbitella coroniformis G.L. & Th., 1960									1				1							
Família Lesquereusiidae																				
Lesquereusia epistomium Penard, 1902								1	1				1							
Lesquereusia gibbosa G.L. & Th., 1959													1							
Lesquereusia globulosa G.L. & Th., 1959									1											
Lesquereusia mimetica Pénard, 1911													1							
Lesquereusia modesta Rhumbler, 1895					1				1				1							
Lesquereusia spiralis Ehrenberg, 1840					1				1				1							
Netzelia labeosa Beyens & Chardez, 1997									1											
Netzelia oviformis (Cash, 1909)					1				1				1							
Netzelia tuberculata (Wallich, 1864)									1				1							
Netzelia wailesi (Ogden, 1980)					1				1				1							
Quadrulella symmetrica (Wallich, 1863)					1															

Família Hyalospheniidae																				
Nebela sp.					1								1							
Difflugiella spp.					1				1											
Família Trigonopyxidae																				
Cyclopyxis eurystoma (Deflandre, 1929)									1											
Cyclopyxis kahli (Deflandre, 1929)					1															
Cyclopyxis sp.													1							
Família Cyphoderiidae																				
Cyphoderia ampulla (Gray, 1873)													1							
Família Euglyphidae																				
Euglypha acanthophora (Ehrenberg, 1841)					1				1				1							
Euglypha brachiata Pénard, 1902					1				1											
Euglypha ciliata (Ehrenberg, 1848)													1							
Euglypha filifera Pénard, 1890									1				1							
Euglypha laevis (Ehrenberg, 1845) Perty, 1849					1				1											
Euglypha strigosa Ehrenberg, 1871					1															
Euglypha tuberculata Dujardin, 1841					1															
Família Trinematiidae																				
Trinema enchelys (Ehrenberg, 1838)					1				1				1							
Trinema lineare Pénard, 1890													1							
Família Phryganellidae																				
Phryganella dissimulatoris Chardez, 1969					1				1											
Phryganella hemisphaerica Pénard, 1902									1											
Família Pseudodifflugiidae																				
Pseudodifflugia sp.													1							
Família Plagiopyxidae																				
Bullinullaria sp.													1							
Ciliophora																				
Família Epistylididae																				
Epistylis spp.													1							
Campanella sp.													1							
Família Vorticelidae																				
Vorticella sp.													1				1			
Zoothamnium spp.													1							
subtotal	**0**	**0**	**0**	**0**	**43**	**0**	**0**	**5**	**53**	**0**	**0**	**0**	**74**	**0**	**0**	**0**	**3**	**2**	**0**	**0**
TOTAL	**36**	**64**	**17**	**81**	**172**	**10**	**84**	**68**	**199**	**23**	**70**	**29**	**243**	**36**	**22**	**23**	**78**	**64**	**23**	**34**