

## A checklist of the freshwater rotifer fauna of Thailand (Rotifera, Monogononta, Bdelloidea)

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### ABSTRACT

We provide a checklist of the freshwater Rotifera recorded from Thailand, based on a review of available literature. Approximately 398 species of rotifers are recorded. The rotifer fauna of Thailand has been investigated quite comprehensively and these studies focus on four main parts of the country: the northern, north-eastern, central and southern. The number of rotifers on record is the highest in the north-eastern part (275), followed by the southern part (261), the central part (182) and the northern part (115). The majority of Thai Rotifera belongs to family Lecanidae (24.4%), Lepadellidae (11.3%), Brachionidae (11.1%), Trichocercidae (9.0%) and Flosculariidae (9.0%). The most diverse genus is *Lecane* followed by *Trichocerca*, *Lepadella* and *Brachionus*. Although most Thai rotifers are cosmopolitan, there are a number of Oriental endemics, including some strict Thai or regional endemics. Illoricate rotifers and bdelloids are understudied, while experimental and molecular approaches promise to add most to our knowledge and understanding of the role of rotifers in ecosystem functioning.

Key words: Rotifer, biodiversity, biogeography, endemicity, Thailand.

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### INTRODUCTION

Phylum Rotifera is, together with Cladocera and Copepoda, one of three main groups of freshwater zooplankton. In many cases, it contributes the highest number of species to local zooplankton diversity. As with many taxonomic groups, our perception of its diversity has evolved over the years as a consequence of advances in taxonomic knowledge and the availability of new study techniques. This has resulted in the presence of a number of ambiguous records in the literature. In particular, in Thailand rotifers have been recorded over a time span of over a century, starting by Weber (1907), and quite a few older records refer to taxonomic concepts that are now understood differently than at the time they were published, and/or use names that are no longer considered valid.

The application of molecular tools promises to revolutionise our understanding of species-level diversity of many organisms, and this is not different in Rotifera (e.g. Fontaneto *et al.*, 2009; García-Morales and Elías-Gutiérrez, 2013; Leasi *et al.*, 2013). Considering this, we feel that the time has come to re-evaluate available literature records of Thai Rotifera, to serve as a basis for future work utilising the new techniques that are increasingly becoming available. We therefore propose the first checklist of the Rotifera of Thailand, taking into account the most recent insights in the taxonomy and biogeography of the

animals, aligned with contemporary views on taxonomy, diversity and biogeography of Rotifera (Segers 2007, 2008; Segers and De Smet, 2008).

### METHODS

Our checklist contains the valid names of genera and species recorded from Thailand, and includes synonyms listed in the relevant literature starting by Weber (1907) and including Meksuwan *et al.* (2011), the most recent paper known to us. Unless stated otherwise, taxonomy and nomenclature follow Segers (2007). We further list infrasubspecific variants recorded under their nominal species, as appropriate. Occurrence of species is indicated by region as defined by Setapan (1999), who recognises six geographical regions (northern, north-eastern, central, western, eastern and southern) defined by mountain ranges and topography in Thailand. For the biogeographical comparison we refer to regions as defined in Balian *et al.* (2008). Information on the distribution of rotifer species is obtained from Segers (1996, 2007), except for those species-level taxa that were, for any reason, not included in those works [*Collotheca algicola* (Hudson, 1886), *Lepadella monostyla* f. *caudata* (Koste, 1972), *Stephanoceros millsii* (Kellicott, 1885), *Trichocerca inermis* (Linder, 1904) and *Trichocerca tenuidens* (Hauer, 1931)].

## RESULTS AND DISCUSSION

The study of freshwater rotifers in Thailand started with the publication by Weber (1907). To date, approximately 398 species-level taxa of rotifer have been recorded (Tab. 1). A number of older records were recently re-evaluated by Segers and Savatenalinton (2010). Other dubious or otherwise problematic records are the following:

- *Brachionus dichotomus* Shephard, 1911 and *B. dichotomus reductus* Koste and Shiel, 1980. Both names can be found in literature dealing with Thai Rotifera; however, the typical *B. dichotomus* has, to our knowledge, not been recorded from the Oriental region and we therefore indicate that the presence of *B. dichotomus* Shephard requires confirmation.
- *Brachionus plicatilis* Müller, 1786: records under this name most likely do not refer to this species as presently understood (Ciros-Perez *et al.*, 2001), but any of the warm-water representatives of this cryptic species group (Suatoni *et al.*, 2006).
- *Keratella tropica* Apstein, 1907: we included under this name the record of *Keratella valga* (Ehrenberg, 1834) by Boonsom (1984), considering that the distinction between the cold-water, acidophilic *K. valga* and the warm-water, euryoecious *K. tropica* has long remained problematic, and that it is unlikely that the former would occur in the habitats studied by Boonsom (1984).
- Koste's (1975) record of the *nomen nudum* *Lepadella monostyla* f. *caudata* (Koste) is most likely a lapsus regarding the taxon *Lepadella monodactyla caudata* Koste, 1972, at present considered a junior subjective synonym of the nominal taxon.
- The presence in Thailand of *Filinia terminalis* (Plate, 1886) is in need of confirmation, considering that this cold-stenotherm is easily confused with the warm-water *F. novaezealandiae* Shiel and Sanoamuang, 1993 (Segers *et al.* 1996). However, while the two records of *F. terminalis* indeed precede the recognition of *F. novaezealandiae*, the presence of this species in the North of Thailand can not be excluded *a priori*.
- The record of *Habrotrocha recumbens* Bartoš, 1963 by Koste (1975) is not included in the checklist. The name is unavailable in the sense of the International Code of Zoological Nomenclature (ICZN, 1999), as it is based solely on the case inhabited by the animal, and not the animal itself.
- Of the remaining species not included in Segers (2007), *Collotheca algicola* (Hudson, 1886) and *Stephanoceros millsii* (Kellicott, 1885) were recently treated as valid by Meksuwan *et al.* (2011), while *Trichocerca inermis* (Linder, 1904) has recently been recognised as a junior synonym of *T. dixonnuttalli* (Jennings, 1903) (Jersabek *et al.*, 2011), and *Trichocerca tenuidens* (Hauer, 1931) remains an insufficiently described species *inquirenda* (Segers, 2003).

The majority of Thai Rotifera belongs to family Lecanidae (1 genus with 97 species, 24.4%), Lepadellidae (4 genera with 45 species, 11.3%), Brachionidae (5 genera with 44 species, 11.1%), Trichocercidae (1 genus with 36 species, 9.0%) and Flosculariidae (9 genera with 36 species, 9.0%). The most diverse genus was *Lecane*, comprising 97 species, followed by *Trichocerca* (36 species), *Lepadella* (31 species) and *Brachionus* (30 species).

Regarding the regional distribution of rotifers in the six geographical regions of Thailand (northern, north-eastern, central, western, eastern and southern) (Setapan, 1999), we note that Thailand has been quite comprehensively investigated, but studies have focused on four main parts: the northern, the north-eastern, the central and the southern. The number of rotifers on record is highest in the north-eastern part (275 species) (Sanoamuang *et al.*, 1995; Sanoamuang and Savatenalinton, 1999, 2001; Segers *et al.*, 2004; Savatenalinton and Segers, 2005), followed by the southern part (261 species) (Pholpunthin, 1997; Segers and Pholpunthin, 1997; Pholpunthin and Chittapun, 1998; Chittapun *et al.*, 1999, 2002, 2003, 2005, 2007; Chittapun and Pholpunthin, 2001; Segers and Chittapun, 2001; Sanoamuang, 2007; Meksuwan *et al.*, 2011), the central part (182 species) (De Ridder, 1971; Koste, 1975; Sanoamuang and Segers, 1997; Jithland and Wongrat, 2006; Teeramaethee *et al.*, 2006; Savatenalinton and Segers, 2008; Chittapun *et al.*, 2009; Chittapun, 2011) and the northern part (115 species) (De Ridder, 1971; Sanoamuang, 1998).

That the number of rotifer species recorded from north-east Thailand is the highest of all regions should not automatically be interpreted as indicating that rotifer diversity is the highest there. Admittedly, this region is the largest of all Thai regions, but it is also the most intensively studied region, as can be judged from the number and of the relevant studies and their being comprehensive (e.g. Sanoamuang *et al.*, 1995). The southern region has the second largest rotifer record, which we attribute to the high diversity and abundance of its freshwater habitats, in addition to intensive study. The record from other Thai regions is much lower, mostly because the number of studies is, conversely, lower. Nevertheless, when compared to other countries in Southeast Asia, the inventory confirms that the country is the best documented of all countries in the region (Segers, 2001).

The Thai rotifer fauna is composed largely of widespread, cosmopolitan or tropicopolitan species, but there is a sizeable fraction of Oriental (13 species, 3.3%) or even local, Thai endemics (13 species, 3.3%; Tab. 2). It can be expected that the latter number will decrease as research in countries neighbouring Thailand may reveal the presence of these strict Thai endemics, as is the case with species like *Cephalodella songkhlaensis* Segers and Pholpunthin, 1997 and *Ptygura thalenoiensis* Meksuwan *et al.*, 2011.

## CONCLUSIONS

Notwithstanding that the Thai rotifer fauna is the richest of all Southeast Asian countries, this by no means implies that the fauna is adequately studied. In addition to knowledge gaps concerning understudied regions in Thailand, some taxonomic groups are insufficiently documented. This is the case for taxa such as Notommatidae and bdelloids [respectively 24 and 4 Thai records compared to 48 and 58 from the Oriental region (Segers, 2008)], two groups which are notoriously difficult to study because of methodological constraints. Furthermore, we lack understanding of the ecology and evolution of rotifers, and their role in ecosystem processes (Wallace *et al.*, 2006). Targeted efforts on understudied regions and taxonomic groups, preferably using modern, molecular tools, will undoubtedly raise the records of rotifer diversity in Thailand, while experimental studies are needed to elucidate their contribution to ecosystem processes and functions.

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**Tab. 1.** Species list of Rotifera in Thailand.

Species	Distribution	References
<b>Monogononta</b>		
Family Asplanchnidae		
1 <i>Asplanchna brightwellii</i> Gosse, 1850	NE, C	1, 3, 4, 13, 17, 20, 21, 22
2 <i>Asplanchna priodonta</i> Gosse, 1850	N, NE, C	3, 4, 9, 13, 17, 20, 21, 22, 24
3 <i>Asplanchna sieboldii</i> (Leydig, 1854)	N, NE, C, S	4, 9, 17, 23, 24, 26, 28
4 <i>Asplanchna tropica</i> Koste & Tobias, 1989	NE, S	4, 5, 7
5 <i>Asplanchnopuss hyalinus</i> Harring, 1913	NE	4, 17
6 <i>Asplanchnopuss multiceps</i> (Schrank, 1793)	NE	4
7 <i>Harringtonia rousseleti</i> de Beauchamp, 1912	S	23
Family Atrochidae		
8 <i>Acyclus inquietus</i> Leidy, 1882	S	29
9 <i>Cupelopagis vorax</i> (Leidy, 1857)	C, S	2, 5, 7
Family Brachionidae		
10 <i>Anuraeopsis coelata</i> de Beauchamp, 1932	NE, C, S	4, 5, 7, 17, 18, 20, 21, 22, 23, 24
11 <i>Anuraeopsis fissa</i> Gosse, 1851 Syn.: <i>Anuraeopsis fissa fissa</i> Gosse, 1851: Koste, 1975	N, NE, C, S	1, 2, 3, 4, 5, 7, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26
12 <i>Anuraeopsis navicula</i> Rousselet, 1911	NE, C, S	4, 5, 7, 10, 21, 23, 24, 26
13 <i>Brachionus angularis</i> Gosse, 1851 Incl. <i>Brachionus angularis</i> Gosse f. <i>typica</i> , f. <i>chelonis</i> : Sanoamuang <i>et al.</i> , 1995	N, NE, C, S	1, 3, 4, 5, 7, 9, 10, 13, 17, 18, 20, 21, 22, 23, 24, 25, 26
14 <i>Brachionus angularis bidens</i> Plate, 1886	NE	4
15 <i>Brachionus bennini</i> Leissling, 1924	NE	4
16 <i>Brachionus bidentatus</i> Anderson, 1889	NE, C	4, 13, 17, 21, 24
17 <i>Brachionus budapestinensis</i> Daday, 1885	NE	4, 24
18 <i>Brachionus calyciflorus</i> Pallas, 1766 Syn.: <i>Brachionus calyciflorus calyciflorus</i> Pallas, 1766: Sanoamuang <i>et al.</i> , 1995 Incl. <i>Brachionus calyciflorus</i> f. <i>typica</i> , f. <i>monstruosus</i> , f. <i>amphiceros</i> : Sanoamuang <i>et al.</i> , 1995	N, NE, C, S	1, 3, 4, 5, 7, 9, 13, 17, 18, 20, 21, 22, 23, 24, 26

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**Tab. 1.** Continued from previous page.

Species	Distribution	References
19 <i>Brachionus caudatus</i> Barrois and Daday, 1894 Incl. <i>Brachionus caudatus</i> f. <i>aculeatus</i> : Sanoamuang <i>et al.</i> , 1995; Teeramaethee <i>et al.</i> , 2006 <i>Brachionus caudatus</i> f. <i>apsteini</i> : Teeramaethee <i>et al.</i> , 2006 <i>Brachionus caudatus</i> f. <i>personatus</i> : Sanoamuang <i>et al.</i> , 1995	N, NE, C, S	1, 3, 4, 5, 7, 9, 17, 20, 21, 22, 24, 26
20 <i>Brachionus dichotomus</i> Shephard, 1911	NE, C, S	5, 7, 20, 21, 23, 24
21 <i>Brachionus dichotomus reductus</i> Koste & Shiel, 1980 Syn.: <i>B. dichotomus</i> Shephard f. <i>reductus</i> Koste & Shiel, 1980: Sanoamuang <i>et al.</i> , 1995; Sanoamuang, 1998; Sanoamuang <i>et al.</i> , 2001; Segers <i>et al.</i> , 2004; Savatenalinton & Segers, 2005; Teeramaethee <i>et al.</i> , 2006; Sanoamuang, 2007	N, NE	4, 9, 13, 17, 18, 22
22 <i>Brachionus diversicornis</i> (Daday, 1883)	N, NE, C	3, 4, 9, 17, 20, 21, 22, 24, 26
23 <i>Brachionus donneri</i> Brehm, 1951	N, NE, C, S	3, 4, 5, 7, 9, 13, 17, 20, 22, 23, 24
24 <i>Brachionus durgae</i> Dhanapathi, 1974	NE	4, 24
25 <i>Brachionus falcatus</i> Zacharias, 1898	N, NE, C, S	1, 3, 4, 5, 7, 9, 10, 13, 17, 18, 20, 21, 22, 23, 24, 26, 28
26 <i>Brachionus forficula</i> Wierzejski, 1891 Incl. <i>Brachionus forficula</i> f. <i>typica</i> , f. <i>reductus</i> : Sanoamuang <i>et al.</i> , 1995	N, NE, C, S	1, 3, 4, 5, 7, 9, 13, 17, 18, 20, 21, 22, 23, 24, 25, 26, 28
27 <i>Brachionus kostei</i> Shiel, 1983	N, NE	4, 9, 17
28 <i>Brachionus leydigii</i> Cohn, 1862	-	3
29 <i>Brachionus lyratus</i> Shephard, 1911	NE, S	4, 17, 23, 24
30 <i>Brachionus murphyi</i> Sudzuki, 1989 Syn.: <i>Brachionus niwati</i> Sanoamuang, Segers & Dumont, 1995: Sanoamuang <i>et al.</i> , 1995; Pholpunthin, 1997; Segers & Pholpunthin, 1997	NE, S	4, 5, 7, 17, 23
31 <i>Brachionus nilsoni</i> Ahlstrom, 1940	C	22
32 <i>Brachionus plicatilis</i> Müller, 1786	NE	3, 4
33 <i>Brachionus quadridentatus</i> Hermann, 1783 Syn.: <i>Brachionus quadridentatus quadridentatus</i> Hermann, 1783: Sanoamuang <i>et al.</i> , 1995; Athibai <i>et al.</i> , 2005 <i>Brachionus quadridentatus</i> f. <i>typica</i> : Sanoamuang <i>et al.</i> , 1995 Incl. <i>Brachionus quadridentatus</i> f. <i>brevispinus</i> : Sanoamuang <i>et al.</i> , 1995; Athibai <i>et al.</i> , 2005 <i>Brachionus quadridentatus</i> f. <i>cluniorbicularis</i> : Athibai <i>et al.</i> , 2005	N, NE, C, S	1, 3, 4, 5, 7, 9, 10, 13, 15, 17, 18, 20, 21, 22, 23, 24, 26
34 <i>Brachionus quadridentatus melhemi</i> Barrois & Daday, 1894 Syn.: <i>B. quadridentatus</i> f. <i>melhemi</i> Barrois & Daday, 1894: Athibai <i>et al.</i> , 2005	-	18
35 <i>Brachionus quadridentatus mirabilis</i> Daday, 1897 Syn.: <i>B. quadridentatus</i> f. <i>mirabilis</i> Daday, 1897: Chittapun & Pholpunthin, 2001; Chittapun <i>et al.</i> , 2002; Athibai <i>et al.</i> , 2005	S	12, 18
36 <i>Brachionus rotundiformis</i> Tschugunoff, 1921	C, S	18, 19, 23, 26
37 <i>Brachionus rubens</i> Ehrenberg, 1838	NE, C, S	4, 5, 7, 10, 17, 18, 20, 24, 26
38 <i>Brachionus sericus</i> Rousselet, 1907	-	18
39 <i>Brachionus sessilis</i> Varga, 1951	NE	4
40 <i>Brachionus srisumonae</i> Segers, Kothetip & Sanoamuang, 2004	NE	17
41 <i>Brachionus urceolaris</i> Müller, 1773	NE, C, S	3, 4, 14, 18, 19, 23, 26, 28
42 <i>Brachionus variabilis</i> Hempel, 1896	S	10
43 <i>Keratella cochlearis</i> (Gosse, 1851) Incl. <i>Keratella cochlearis</i> f. <i>typica</i> , f. <i>micracantha</i> : Sanoamuang <i>et al.</i> , 1995	N, NE, C, S	1, 3, 4, 5, 7, 9, 13, 17, 18, 20, 21, 22, 23, 24, 25
44 <i>Keratella edmondsoni</i> Ahlstrom, 1943	NE	4, 13, 17, 18
45 <i>Keratella javana</i> Hauer, 1973	S	12, 15
46 <i>Keratella lenzi</i> Hauer, 1953	N, NE, C, S	2, 4, 5, 7, 9, 13, 17, 18, 20, 21, 22, 24, 26
47 <i>Keratella mixta</i> (Oparina-Charitonova, 1924)	S	15
48 <i>Keratella procura</i> (Thorpe, 1891)	NE, C	3, 4, 17, 18, 20, 22
49 <i>Keratella taksinensis</i> Chittapun, Pholpunthin & Segers, 2002	S	15
50 <i>Keratella tecta</i> (Gosse, 1851)	NE, C	4, 17, 18, 20, 21, 22

To be continued on next page.

**Tab. 1.** Continued from previous page.

	Species	Distribution	References
51	<i>Keratella tropica</i> (Apstein, 1907) Syn.: <i>Keratella valga tropica</i> Apstein, 1907; Koste, 1975	N, NE, C, S	1, 2, 3, 4, 5, 7, 9, 10, 13, 17, 18, 20, 21, 22, 23, 24, 25, 26
52	<i>Plationus patulus</i> (Müller, 1786) Syn: <i>Brachionus patulus</i> Müller, 1786; Boonsom, 1984 <i>Plationus patulus</i> (Müller) f. <i>typica</i> : Sanoamuang <i>et al.</i> , 1995	N, NE, C, S	3, 4, 5, 7, 9, 10, 12, 13, 15, 17, 18, 20, 21, 22, 23, 24, 26
53	<i>Platyias quadricornis</i> (Ehrenberg, 1832) Syn.: <i>Platyias quadricornis quadricornis</i> (Ehrenberg, 1832); Chittapun <i>et al.</i> , 2002 Incl. <i>Platyias quadricornis</i> f. <i>brevispinus</i> : Chittapun <i>et al.</i> , 2002	N, NE, C, S	3, 4, 5, 7, 9, 10, 13, 15, 17, 18, 21, 22, 23, 24, 26
	Family Conochilidae		
54	<i>Conochilus (Conochiloïdes) coenobasis</i> (Skorikov, 1914)	NE	4, 13, 20, 24
55	<i>Conochilus (Conochiloïdes) dossuarius</i> Hudson, 1885	N, NE	4, 9
56	<i>Conochilus (Conochiloïdes) natans</i> (Seligo, 1900)	NE, S	4, 13, 20, 23, 24
57	<i>Conochilus (Conochilus) hippocrepis</i> (Schrank, 1803)	NE, S	4, 20, 24, 29
58	<i>Conochilus (Conochilus) unicornis</i> Rousselet, 1892	NE	3, 13
	Family Collothecidae		
59	<i>Collotheca algicola</i> (Hudson, 1886)	S	29
60	<i>Collotheca ambigua</i> (Hudson, 1883)	S	29
61	<i>Collotheca campanulata</i> (Dobie, 1849) Incl. <i>Collotheca campanulata</i> var. <i>longicaudata</i> : Meksuwan <i>et al.</i> , 2011	NE, S	4, 29
62	<i>Collotheca edentata</i> (Collins, 1872)	C	2
63	<i>Collotheca heptabrachiata</i> (Schoch, 1869)	S	29
64	<i>Collotheca ornata</i> (Ehrenberg, 1832)	S	29
65	<i>Collotheca stephanochaeta</i> Edmondson, 1936	S	29
66	<i>Collotheca tenuilobata</i> (Anderson, 1889)	NE, S	13, 29
67	<i>Collotheca trilobata</i> (Collins, 1872) <i>Collotheca</i> cf. <i>trilobata</i> (Collins, 1872): Teeramaethee <i>et al.</i> , 2006	S	29
68	<i>Stephanoceros fimbriatus</i> (Goldfusz, 1820)	S	29
69	<i>Stephanoceros millsii</i> (Kellicott, 1885)	S	29
	Family Dicranophoridae		
70	<i>Aspelta circinata</i> (Gosse, 1886)	NE	13
71	<i>Dicranophoroides caudatus</i> (Ehrenberg, 1834) Syn.: <i>Dicranophorus caudatus</i> (Ehrenberg, 1834): Sanoamuang and Savatenalinton, 2001	N, NE	4, 9, 13, 17, 20
72	<i>Dicranophoroides claviger</i> (Hauer, 1965) Syn.: <i>Dicranophorus claviger</i> (Hauer): Pholpunthin, 1997	NE, S	4, 5, 7, 13, 17, 24
73	<i>Dicranophorus epicharis</i> Harring & Myers, 1928 <i>Dicranophorus</i> cf. <i>epicharis</i> Harring & Myers, 1928: Sanoamuang <i>et al.</i> , 1995	NE, C, S	2, 10, 12, 13, 17, 20, 23, 26
74	<i>Dicranophorus grandis</i> (Ehrenberg, 1832)	N, NE	4, 9, 13
75	<i>Dicranophorus prionacis</i> Harring & Myers, 1928	S	5, 7
76	<i>Dicranophorus robustus</i> Harring & Myers, 1928	-	3
77	<i>Encentrum longidens</i> Donner, 1943	S	14
78	<i>Encentrum pornsilpi</i> Segers & Chittapun, 2001	S	14, 19, 23
	Family Epiphanidae		
79	<i>Cyrtonia tuba</i> (Ehrenberg, 1834)	S	5, 7
80	<i>Epiphantes clavulata</i> (Ehrenberg, 1832)	N, NE	4, 9, 17, 20, 24
81	<i>Epiphantes macroura</i> (Barrois & Daday, 1894)	NE	4
82	<i>Proalides subtilis</i> Rodewald, 1940	NE	4
83	<i>Proalides tentaculatus</i> de Beauchamp, 1907	NE	4
	Family Euchlanidae		
84	<i>Beauchampiella eudactylota</i> (Gosse, 1886) Syn.: <i>Manfreodium eudactylotum</i> (Gosse, 1886): Sanoamuang <i>et al.</i> , 1995; Sanoamuang, 1998; Chittapun <i>et al.</i> , 2002; Segers <i>et al.</i> , 2004	N, NE, S	4, 9, 15, 17

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**Tab. 1.** Continued from previous page.

Species	Distribution	References
85 <i>Dipleuchlanis propatula</i> (Gosse, 1886) Incl. <i>Dipleuchlanis propatula</i> f. <i>macrodactyla</i> : Chittapun <i>et al.</i> , 2002	N, NE, C, S	3, 4, 5, 7, 9, 12, 13, 15, 17, 20, 23, 24, 26
86 <i>Euchlanis dilatata</i> Ehrenberg, 1832	N, NE, C, S	1, 2, 3, 4, 5, 7, 9, 10, 12, 13, 17, 20, 22, 23, 24, 26
87 <i>Euchlanis incisa</i> Carlin, 1939 Incl. <i>Euchlanis incisa</i> f. <i>mucronata</i> : Chittapun <i>et al.</i> , 1999	N, NE, C, S	4, 9, 10, 12, 13, 15, 17, 20, 22, 24
88 <i>Euchlanis lyra</i> Hudson, 1886 Incl. <i>Euchlanis lyra</i> f. <i>myersi</i> : Chittapun <i>et al.</i> , 1999	S	10
89 <i>Euchlanis meneta</i> Myers, 1930	NE, C, S	2, 10, 13
90 <i>Euchlanis triquetra</i> Ehrenberg, 1838	C	2
91 <i>Tripleuchlanis plicata</i> (Levander, 1894)	N, NE, C	1, 3, 4, 9, 13, 17, 21, 22
Family Flosculariidae		
92 <i>Beauchampia crucigera</i> (Dutrochet, 1812) Syn.: <i>Beauchampia crucigera crucigera</i> (Dutrochet, 1812): Koste, 1975	C, S	2, 29
93 <i>Floscularia armata</i> Segers, 1997	S	29
94 <i>Floscularia bifida</i> Segers, 1997	S	29
95 <i>Floscularia conifera</i> (Hudson, 1886)	NE, C, S	2, 12, 13, 17, 19, 23, 29
96 <i>Floscularia decora</i> Edmondson, 1940	C	2
97 <i>Floscularia melicerta</i> (Ehrenberg, 1832)	C	2
98 <i>Floscularia pedunculata</i> (Joliet, 1883)	S	29
99 <i>Floscularia ringens</i> (Linnaeus, 1758)	NE, C, S	2, 13, 29
100 <i>Floscularia wallacei</i> Segers & Shiel, 2008	S	29
101 <i>Lacinularia flosculosa</i> (Müller, 1773)	S	29
102 <i>Lacinularoides coloniensis</i> (Colledge, 1918)	S	29
103 <i>Limnias ceratophylli</i> Schrank, 1803	C, S	2, 29
104 <i>Limnias melicerta</i> Weisse, 1848	C, S	2, 14, 29
105 <i>Octotrocha speciosa</i> Thorpe, 1893	S	29
106 <i>Pentatrocha gigantea</i> Segers & Shiel, 2008	S	29
107 <i>Ptygura agassizi</i> Edmondson, 1948	S	29
108 <i>Ptygura barbata</i> Edmondson, 1939	S	29
109 <i>Ptygura beauchampi</i> Edmondson, 1940	S	29
110 <i>Ptygura brachiata</i> (Hudson, 1886)	C	2
111 <i>Ptygura crystallina</i> (Ehrenberg, 1834)	S	29
112 <i>Ptygura ctenoida</i> Koste & Tobias, 1990	S	29
113 <i>Ptygura elsteri</i> Koste, 1972 Syn.: <i>Ptygura elsteri elsteri</i> Koste, 1972: Koste, 1975	C, S	2, 29
114 <i>Ptygura furcillata</i> (Kellicott, 1889) Syn.: <i>Ptygura furcillata furcillata</i> (Kellicott, 1889): Koste, 1975 Incl.: <i>Ptygura furcillata</i> f. <i>variabilis</i> : Koste, 1975	NE, C, S	2, 13, 29
115 <i>Ptygura kostei</i> José de Paggi, 1996 Syn.: <i>Ptygura elsteri</i> f. <i>thailandis</i> Koste, 1975: Sanoamuang and Savatenalinton, 2001	NE	13
116 <i>Ptygura longicornis</i> (Davis, 1867)	S	29
117 <i>Ptygura melicerta</i> Ehrenberg, 1832	NE, C	2, 13
118 <i>Ptygura mucicola</i> (Kellicott, 1888)	C, S	2, 29
119 <i>Ptygura noordti</i> (Koste, 1972)	S	29
120 <i>Ptygura pedunculata</i> Edmondson, 1939	S	29
121 <i>Ptygura tacita</i> Edmondson, 1940	NE, S	13, 29
122 <i>Ptygura thalenoiensis</i> Meksuwan, Pholpunthin & Segers, 2011	S	29
123 <i>Ptygura wilsonii</i> (Anderson & Shephard, 1892)	S	29
124 <i>Sinantherina ariprepresa</i> Edmondson, 1939	NE, C	13, 20, 22
125 <i>Sinantherina semibullata</i> (Thorpe, 1893)	N, NE, S	4, 9, 20, 29
126 <i>Sinantherina socialis</i> (Linnaeus, 1758)	C, S	2, 29
127 <i>Sinantherina spinosa</i> (Thorpe, 1893)	NE, C, S	4, 13, 17, 20, 22, 24, 26, 29

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**Tab. 1.** Continued from previous page.

Species	Distribution	References
Family Gastropodidae		
128 <i>Ascomorpha agilis</i> Zacharias, 1893	C	21
129 <i>Ascomorpha ecaudis</i> Perty, 1850	N, NE, C, S	4, 5, 7, 9, 20, 21
130 <i>Ascomorpha ovalis</i> (Bergendal, 1892)	NE, C, S	3, 4, 7, 13, 17, 20, 21, 22, 23, 24
131 <i>Ascomorpha saltans</i> Bartsch, 1870	NE, C, S	3, 4, 5, 7, 13, 17, 20, 21, 22
132 <i>Gastropus hyptopus</i> (Ehrenberg, 1838)	NE	4
Family Hexarthridae		
133 <i>Hexarthra fennica</i> (Levander, 1892)	NE	4
134 <i>Hexarthra intermedia</i> (Wiszniewski, 1929)	N, NE, C, S	4, 5, 7, 9, 13, 17, 20, 21, 22, 24
135 <i>Hexarthra mira</i> (Hudson, 1871)	N, NE, C, S	4, 5, 7, 9, 13, 17, 19, 20, 22, 23, 24
136 <i>Hexarthra oxyuris</i> (Sernov, 1903)	NE	4
Family Ituridae		
137 <i>Itura aurita</i> (Ehrenberg, 1830)	NE	4
138 <i>Itura symmetrica</i> Segers, Mbogo & Dumont, 1994	NE	4
Family Lecanidae		
139 <i>Lecane abanica</i> Segers, 1994	S	12, 23, 27
140 <i>Lecane acanthinula</i> (Hauer, 1938)	NE, S	4, 6, 14, 23, 27
141 <i>Lecane aculeata</i> (Jakubski, 1912)	N, NE, C, S	2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 27, 28
142 <i>Lecane acus</i> (Harring, 1913)	C	1, 3
143 <i>Lecane aeganea</i> Harring, 1914	N, NE, C	3, 4, 9, 21, 27
144 <i>Lecane agilis</i> (Bryce, 1892)	C	25, 27
145 <i>Lecane arcuata</i> (Bryce, 1891)	NE, C, S	1, 2, 3, 4, 10, 12, 25, 27
146 <i>Lecane arcula</i> Harring, 1914		
Syn: <i>Lecane strandi</i> Berzins, 1943: Jithlang & Wongrat, 2006	N, NE, C, S	4, 5, 7, 8, 9, 10, 13, 15, 17, 20, 22, 23, 24, 27
147 <i>Lecane armata</i> Thomasson, 1971	-	27
148 <i>Lecane aspasia</i> Myers, 1917	N, NE	4, 9, 17, 27
149 <i>Lecane baimaii</i> Sanoamuang & Savatenalinton, 1999	NE	11, 17, 27
150 <i>Lecane batillifer</i> (Murray, 1913)	NE, C, S	4, 5, 7, 17, 20, 22, 23, 27
151 <i>Lecane bifastigata</i> Hauer, 1938	NE, C	4, 6, 22, 27
152 <i>Lecane bifurca</i> (Bryce, 1892)	NE, S	5, 7, 10, 19, 20, 23, 24, 27
153 <i>Lecane blachei</i> Bērziņš, 1973	N, NE, C, S	4, 6, 8, 9, 13, 17, 20, 27
154 <i>Lecane braumi</i> Koste, 1988	NE, S	12, 13, 15, 27
155 <i>Lecane bulla</i> (Gosse, 1851)	N, NE, C, S	1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 14, 15, 17, 19, 20, 21, 22, 23, 24, 26, 27, 28
Syn.: <i>Lecane bulla bulla</i> (Gosse, 1851): Segers & Savatenalinton, 2010		
156 <i>Lecane bulla diabolica</i> (Hauer, 1936)	-	27
157 <i>Lecane calcaria</i> Harring & Myers, 1926	NE, S	7, 12, 17, 27
158 <i>Lecane chinesensis</i> Zhuge & Koste 1996	-	27
159 <i>Lecane clara</i> (Bryce, 1892)	NE, S	5, 7, 12, 20, 27
160 <i>Lecane closterocerca</i> (Schmarda, 1859)	N, NE, C, S	1, 2, 3, 4, 5, 7, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26, 27
161 <i>Lecane cornuta</i> (Müller, 1786)	C	1, 2, 3
162 <i>Lecane crenata</i> (Harring, 1913)	C	2, 27
163 <i>Lecane crepida</i> Harring, 1914	N, NE, C, S	2, 4, 5, 7, 9, 10, 12, 13, 17, 20, 22, 23, 24, 27
164 <i>Lecane curvicornis</i> (Murray, 1913)	N, NE, C, S	1, 3, 4, 5, 7, 8, 9, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26, 27, 28
Incl. <i>Lecane curvicornis</i> f. <i>typica</i> : Sanoamuang et al., 1995		
165 <i>Lecane decipiens</i> (Murray, 1913)	NE, S	10, 11, 12, 13, 17, 20, 24, 27
166 <i>Lecane donneri</i> Chengalath & Mulamoottil, 1974	NE	11, 17, 24, 27
167 <i>Lecane doryssa</i> Harring, 1914	N, NE, S	4, 9, 12, 13, 15, 17, 20, 23, 24, 27
<i>Lecane</i> cf. <i>doryssa</i> Harring, 1914: Sanoamuang and Savatenalinton, 2001		

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**Tab. 1.** Continued from previous page.

Species	Distribution	References
168 <i>Lecane elegans</i> Harring, 1914	N, NE, C	2, 9, 13, 17, 20, 24, 26, 27, 28
169 <i>Lecane enowi</i> Segers and Mertens, 1997	S	15, 27
170 <i>Lecane eswari</i> Dhanapathi, 1976	NE	6, 17, 27
171 <i>Lecane flexilis</i> (Gosse, 1886)	NE, C, S	4, 10, 13, 17, 20, 22, 23, 27
172 <i>Lecane furcata</i> (Murray, 1913)	N, NE, C, S	2, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 27
173 <i>Lecane galeata</i> (Bryce, 1892) Syn.: <i>Lecane (Monostyla) pygmaea</i> Daday, 1897; Koste, 1975	C	2
174 <i>Lecane grandis</i> (Murray, 1913)	NE, S	10, 11, 23, 27
175 <i>Lecane haliclysta</i> Harring & Myers, 1926	N, NE, C, S	4, 9, 12, 13, 17, 20, 22, 23, 24, 27
176 <i>Lecane hamata</i> (Stokes, 1896)	N, NE, C, S	2, 4, 5, 7, 8, 9, 10, 12, 13, 14, 15, 17, 20, 21, 22, 23, 24, 26, 27
177 <i>Lecane hastata</i> (Murray, 1913)	N, NE, C, S	3, 4, 9, 17, 20, 21, 22, 23, 24, 27
178 <i>Lecane hornemannii</i> (Ehrenberg, 1834)	N, NE, C, S	4, 5, 7, 8, 9, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26, 27
179 <i>Lecane inermis</i> (Bryce, 1892)	NE, C, S	2, 4, 5, 7, 10, 12, 15, 19, 20, 23, 26, 27
180 <i>Lecane inopinata</i> Harring & Myers, 1926	N, NE, C, S	3, 4, 9, 10, 12, 13, 17, 20, 21, 22, 24, 27, 28
181 <i>Lecane intrasinuata</i> (Olofsson, 1917)	C	2
182 <i>Lecane isanensis</i> Sanoamuang & Savatenalinton, 2001	NE	13, 27
183 <i>Lecane junki</i> Koste, 1975	C, S	2, 6, 16, 27
184 <i>Lecane kunthuleensis</i> Chittapun, Pholpunthin & Segers, 2003	S	16, 27
185 <i>Lecane lamellata</i> (Daday, 1893)	-	3
186 <i>Lecane lateralis</i> Sharma, 1978	N, NE, C, S	4, 5, 7, 8, 9, 10, 13, 15, 17, 20, 23, 24, 27, 26, 28
187 <i>Lecane latissima</i> Yamamoto, 1955 Syn.: <i>Lecane thailandensis</i> Segers & Sanoamuang, 1994; Sanoamuang et al., 1995; Sanoamuang and Segers, 1997; Pholpunthin & Chittapun, 1998; Sanoamuang & Savatenalinton, 2001; Segers et al., 2004; Savatenalinton & Segers, 2005	NE, S	4, 6, 8, 13, 17, 20, 27
188 <i>Lecane lauterborni</i> Hauer, 1924	-	3, 27
189 <i>Lecane leontina</i> (Turner, 1892)	N, NE, C, S	2, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26, 27
190 <i>Lecane ludwigii</i> (Eckstein, 1883)	N, NE, C, S	2, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 19, 20, 22, 23, 24, 27
191 <i>Lecane luna</i> (Müller, 1776)	N, NE, C, S	1, 3, 4, 5, 7, 8, 9, 10, 13, 17, 20, 21, 22, 23, 24, 26, 27, 28
192 <i>Lecane lunaris</i> (Ehrenberg, 1832)	N, NE, C, S	2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 25, 27
193 <i>Lecane lungae</i> Savatenalinton & Segers, 2005	NE	20, 27
194 <i>Lecane martensi</i> Savatenalinton & Segers, 2008	C	25, 27
195 <i>Lecane micrognatha</i> Segers & Savatenalinton, 2010	-	27
196 <i>Lecane minuta</i> Segers, 1994	S	5, 6, 7, 27
197 <i>Lecane mitis</i> Harring & Myers, 1926	S	12, 27
198 <i>Lecane monostyla</i> (Daday, 1897)	NE, C, S	3, 4, 10, 12, 15, 17, 22, 23, 24, 27
199 <i>Lecane nana</i> (Murray, 1913)	NE, C, S	1, 3, 4, 5, 7, 13, 17, 20, 27, 28
200 <i>Lecane nelsoni</i> Segers, 1994	NE	13, 27
201 <i>Lecane nitida</i> (Murray, 1913) Syn.: <i>Lecane curvicornis</i> (Murray) f. <i>nitida</i> (Murray): Sanoamuang et al., 1995	NE	4, 27
202 <i>Lecane niwati</i> Segers, Kothetip & Sanoamuang, 2004	NE	17, 27
203 <i>Lecane obtusa</i> (Murray, 1913)	N, NE, C, S	4, 5, 7, 8, 9, 10, 12, 13, 14, 15, 17, 19, 20, 22, 23, 24, 27
204 <i>Lecane opias</i> (Harring & Myers, 1926)	NE	20, 27
205 <i>Lecane palinacis</i> Harring & Myers, 1926	C, S	12, 23, 26, 27, 28
206 <i>Lecane papuana</i> (Murray, 1913)	N, NE, C, S	1, 3, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 24, 26, 27, 28

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**Tab. 1.** Continued from previous page.

Species	Distribution	References
207 <i>Lecane paxiana</i> Hauer, 1940	NE, C	20, 25, 27
208 <i>Lecane pertica</i> Harring & Myers, 1926	N, NE, S	5, 7, 9, 12, 13, 15, 17, 27
209 <i>Lecane punctata</i> (Murray, 1913) Syn.: <i>Lecane harringi</i> Ahlstrom, 1934; Boonsom, 1984; Jithlang and Wongrat, 2006	NE, C	3, 11, 20, 21, 22, 27
210 <i>Lecane pusilla</i> Harring, 1914	N, NE, S	4, 9, 12, 13, 17, 20, 27
211 <i>Lecane pyriformis</i> (Daday, 1905)	NE, C, S	2, 4, 10, 12, 13, 14, 15, 17, 20, 22, 23, 24, 26, 27
212 <i>Lecane quadridentata</i> (Ehrenberg, 1830)	N, NE, C, S	1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 17, 22, 23, 24, 26, 27
213 <i>Lecane rhenana</i> Hauer, 1929	N, NE, C, S	4, 5, 7, 8, 9, 13, 17, 20, 22, 23, 24, 26, 27
214 <i>Lecane rhytidia</i> Harring & Myers, 1926	N, NE, C, S	5, 7, 9, 10, 12, 14, 17, 22, 23, 27
215 <i>Lecane robertsonae</i> Segers, 1993	NE, S	17, 20, 23, 27
216 <i>Lecane ruttneri</i> Hauer, 1938	NE	4, 13, 17, 20, 24, 27
217 <i>Lecane segersi</i> Sanoamuang, 1996	NE, C, S	6, 14, 17, 20, 23, 26, 27
218 <i>Lecane serrata</i> (Hauer, 1938)	NE	11, 17, 27
219 <i>Lecane shieli</i> Segers & Sanoamuang, 1994	NE, S	4, 6, 10, 13, 17, 20, 27
220 <i>Lecane signifera</i> (Jennings, 1896) f. <i>ploenensis</i> (Voigt, 1902)	N, NE, C, S	2, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26, 27
221 <i>Lecane simonneae</i> Segers, 1993	NE, S	12, 13, 15, 17, 27
222 <i>Lecane sola</i> Hauer, 1936	NE	3, 4, 17, 20, 24, 27
223 <i>Lecane stenroosi</i> (Meissner, 1908)	N, NE, C, S	2, 4, 8, 9, 10, 17, 20, 21, 22, 26, 27
224 <i>Lecane stichaea</i> Harring, 1913	C	2, 21, 27
225 <i>Lecane stichoclysta</i> Segers, 1993	NE	20, 27
226 <i>Lecane subtilis</i> Harring & Myers, 1926	NE, S	17, 23, 27
227 <i>Lecane superaculeata</i> Sanoamuang & Segers, 1997	N, NE, C, S	6, 9, 15, 17, 23, 27
228 <i>Lecane sympoda</i> Hauer, 1929	S	5, 7, 27
229 <i>Lecane syngenes</i> (Hauer, 1938)	S	12, 27
230 <i>Lecane tenuiseta</i> Harring, 1914	NE, C, S	2, 4, 5, 7, 8, 10, 12, 13, 15, 17, 19, 20, 21, 22, 23, 24, 27, 28
231 <i>Lecane thalera</i> (Harring & Myers, 1926)	NE, C	4, 22, 27
232 <i>Lecane thiemannii</i> (Hauer, 1938)	NE, C, S	11, 12, 17, 20, 21, 22, 23, 24, 26, 27
233 <i>Lecane undulata</i> Hauer, 1938	N, NE, C, S	4, 5, 7, 9, 12, 13, 17, 20, 23, 24, 27, 28
234 <i>Lecane unguitata</i> (Fadeev, 1926)	N, NE, C, S	4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 19, 20, 22, 23, 24, 26, 27
235 <i>Lecane ungulata</i> (Gosse, 1887)	N, NE, C, S	2, 4, 5, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26, 27
Family Lepadellidae		
236 <i>Colurella adriatica</i> Ehrenberg, 1831	NE, C, S	1, 3, 4, 12, 13, 20, 23, 24, 25
237 <i>Colurella colurus</i> (Ehrenberg, 1830)	N, NE, C, S	2, 4, 9, 10, 12, 15, 23, 26
238 <i>Colurella colurus compressa</i> (Lucks, 1912)	S	14
239 <i>Colurella hindenburgi</i> Steinecke, 1917	C	21
240 <i>Colurella obtusa</i> (Gosse, 1886)	NE, C, S	2, 4, 5, 7, 10, 12, 13, 14, 15, 17, 20, 21, 23, 24
241 <i>Colurella psammophila</i> Segers & Chittapun, 2001	S	14, 23
242 <i>Colurella sanoamuangae</i> Chittapun, Pholpunthin & Segers, 1999	C, S	10, 14, 23, 26
243 <i>Colurella sulcata</i> (Stenroos, 1898)	NE, S	12, 13, 20, 23
244 <i>Colurella tesselata</i> (Glascott, 1893)	S	12, 23
245 <i>Colurella uncinata</i> (Müller, 1773)	N, NE, C, S	5, 7, 9, 12, 13, 15, 17, 20, 22, 23, 24, 26
246 <i>Colurella uncinata bicuspidata</i> (Ehrenberg, 1832) Syn.: <i>Colurella uncinata</i> (Müller) f. <i>bicuspidata</i> (Ehrenberg): Sanoamuang et al., 1995; Chittapun et al., 2002	NE	4
247 <i>Lepadella (Lepadella) acuminata</i> (Ehrenberg, 1834)	NE, C, S	1, 3, 4, 10, 13, 17, 20, 21, 23, 24, 26
248 <i>Lepadella (Lepadella) akrobeles</i> Myers, 1934	NE	11, 17

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**Tab. 1.** Continued from previous page.

Species	Distribution	References
249 <i>Lepadella (Lepadella) amphitropis</i> Harring, 1916	NE	20
250 <i>Lepadella (Lepadella) apsida</i> Harring, 1916	NE, S	4, 5, 7, 10, 13, 23
251 <i>Lepadella (Lepadella) benjamini</i> Harring, 1916	NE	13, 17
252 <i>Lepadella (Lepadella) biloba</i> Hauer, 1958	NE, S	4, 5, 7, 13, 17
253 <i>Lepadella (Lepadella) costatoides</i> Segers, 1992	N, NE, C, S	4, 9, 13, 17, 20, 22, 23, 24
254 <i>Lepadella (Lepadella) cristata</i> (Rousselet, 1893)	NE, S	12, 13
255 <i>Lepadella (Lepadella) dactyliseta</i> (Stenroos, 1898)	NE, S	4, 5, 7, 12, 24
256 <i>Lepadella (Lepadella) desmeti</i> Segers & Chittapun, 2001	S	14, 23
257 <i>Lepadella (Lepadella) discoidea</i> Segers, 1993	N, NE, C, S	4, 9, 10, 12, 13, 15, 17, 22, 24
258 <i>Lepadella (Lepadella) elliptica</i> Wulfert, 1939	NE	3, 20
259 <i>Lepadella (Lepadella) elongata</i> Koste, 1992 <i>Lepadella cf. elongata</i> Koste, 1992: Sanoamuang & Savatenalinton, 2001	NE	11, 17, 20
260 <i>Lepadella (Lepadella) eurysterna</i> Myers, 1942	NE, S	13, 17, 23
261 <i>Lepadella (Lepadella) latusinus</i> (Hilgendorf, 1899)	N, NE, C, S	2, 4, 5, 7, 9, 13, 23
262 <i>Lepadella (Lepadella) lindaui</i> Koste, 1981	NE, C, S	5, 7, 13, 17, 20, 28
263 <i>Lepadella (Lepadella) minoruoides</i> Koste & Robertson, 1983	S	5, 7, 23
264 <i>Lepadella (Lepadella) minuta</i> (Weber & Montet, 1918)	C	25
265 <i>Lepadella (Lepadella) ovalis</i> (Müller, 1786)	N, NE, C, S	2, 3, 4, 5, 7, 9, 10, 12, 13, 17, 20, 22, 23, 24, 26
266 <i>Lepadella (Lepadella) patella</i> (Müller, 1773)	N, NE, C, S	2, 3, 4, 5, 7, 9, 10, 12, 13, 15, 17, 20, 22, 23, 24, 26
267 <i>Lepadella (Lepadella) punctata</i> Wulfert, 1939	S	16
268 <i>Lepadella (Lepadella) quadricarinata</i> (Stenroos, 1898)	N, NE, S	4, 5, 7, 9, 10, 12, 13, 17
269 <i>Lepadella (Lepadella) quinquecostata</i> (Lucks, 1912)	N, NE	9, 13, 17
270 <i>Lepadella (Lepadella) rhomboides</i> (Gosse, 1886)	N, NE, C, S	4, 5, 7, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26
271 <i>Lepadella (Lepadella) triba</i> Myers, 1934	NE, C, S	2, 5, 7, 10, 13, 17, 20, 23, 24
272 <i>Lepadella (Lepadella) triptera</i> (Ehrenberg, 1832) Incl.: <i>Lepadella triptera</i> f. <i>alata</i> ; Sanoamuang and Savatenalinton, 2001; Segers, 2004	NE, S	4, 13, 17, 20, 23
273 <i>Lepadella (Lepadella) vandenbrandei</i> Gillard, 1952	N, NE, S	4, 5, 7, 9, 12, 13, 15, 17, 20, 23, 24
274 <i>Lepadella (Heterolepadella) apsicora</i> Myers, 1834	NE, S	4, 5, 7, 13, 15, 17, 20, 23, 24
275 <i>Lepadella (Heterolepadella) ehrenbergii</i> (Perty, 1850)	N, NE, C, S	4, 9, 13, 15, 17, 20, 22, 23
276 <i>Lepadella (Heterolepadella) heterostyla</i> (Murray, 1913)	NE, S	5, 7, 17, 20
277 <i>Lepadella (Xenolepadella) monodactyla</i> Berzins, 1960 Syn.: <i>Lepadella monostyla</i> f. <i>caudata</i> (Koste, 1972)	NE, C, S	2, 13, 15, 23
278 <i>Paracolurella aemula</i> (Myers, 1934)	S	16
279 <i>Squatinnella lamellaris</i> (Müller, 1786) Syn.: <i>Squatinnella mutica</i> (Ehrenberg); Chittapun & Pholpunthin, 2001; Chittapun et al., 2007 Syn.: <i>Squatinnella lamellaris</i> (Müller) f. <i>mutica</i> (Ehrenberg); Sanoamuang et al., 1995; Sanoamuang & Savatenalinton, 2001; Segers et al., 2004	NE, S	4, 5, 7, 13, 17, 23
280 <i>Squatinnella leydigii</i> (Zacharias, 1886) Incl.: <i>Squatinnella leydigii</i> f. <i>longiseta</i> ; Chittapun et al., 1999; Chittapun et al., 2002	S	10, 15
Family Lindiidae		
281 <i>Lindia (Lindia) torulosa</i> Dujardin, 1841	S	19
Family Mytilinidae		
282 <i>Lophocharis salpina</i> (Ehrenberg, 1834)	N, NE, C	4, 9, 13, 17, 20, 24, 26
283 <i>Mytilina acanthophora</i> Hauer, 1938	N, NE	4, 9, 13, 17
284 <i>Mytilina bisulcata</i> (Lucks, 1912)	N, NE, C	3, 9, 13, 17, 22, 24, 26
285 <i>Mytilina compressa</i> (Gosse, 1851)	NE, S	4, 5, 7
286 <i>Mytilina crassipes</i> (Lucks, 1912)	C	21
287 <i>Mytilina michelangellii</i> Reid & Turner, 1988 Syn.: <i>Mytilina ventralis</i> f. <i>diversicantha</i> Wulfert, 1965: Jithlang & Wongrat, 2006	C	21

To be continued on next page.

**Tab. 1.** Continued from previous page.

Species	Distribution	References
288 <i>Mytilina mucronata</i> (Müller, 1773)	C	21
289 <i>Mytilina umguipes</i> (Lucks, 1912)	N, NE, C	4, 9, 13, 17, 22, 26
290 <i>Mytilina ventralis</i> (Ehrenberg, 1830)	N, NE, C, S	3, 4, 9, 10, 12, 13, 17, 20, 21, 22, 23, 24, 26
291 <i>Mytilina ventralis brevispina</i> (Ehrenberg, 1830)	C	21
Family Notommatidae		
292 <i>Cephalodella forficula</i> (Ehrenberg, 1830)	NE, C, S	2, 4, 13, 20, 23, 24
Syn.: <i>Cephalodella forficula forficula</i> (Ehrenberg, 1830): Koste, 1975		
293 <i>Cephalodella gibba</i> (Ehrenberg, 1830)	NE, C, S	2, 4, 5, 7, 13, 15, 17, 19, 20, 23, 28
294 <i>Cephalodella cf. hyalina</i> Myers, 1924	S	10
295 <i>Cephalodella innesi</i> Myers, 1924	C, S	10, 14, 15, 19, 23, 28
296 <i>Cephalodella megalcephala</i> (Glascott, 1893)	S	14
297 <i>Cephalodella mucronata</i> Myers, 1924	NE, C, S	12, 13, 22
298 <i>Cephalodella cf. pachyodon</i> Wulfert, 1937	NE	4
299 <i>Cephalodella plicata</i> Myers, 1924	S	14
300 <i>Cephalodella songkhlaensis</i> Segers & Pholpunthin, 1997	NE, S	7, 20
301 <i>Cephalodella tenuior</i> (Gosse, 1886)	NE, S	13, 23
302 <i>Cephalodella tenuiseta</i> (Burn, 1890)	C	28
303 <i>Cephalodella ventripes</i> (Dixon-Nuttall, 1901)	NE	4
304 <i>Eosphora cf. thoides</i> Wulfert, 1935	NE	4
305 <i>Monommata actices</i> Myers, 1930	NE, S	5, 7, 17
306 <i>Monommata dentata</i> Wulfert, 1940	S	15, 23
307 <i>Monommata grandis</i> Tessin, 1890	S	10, 12, 15, 23
308 <i>Monommata longiseta</i> (Müller, 1786)	S	10, 12, 15
309 <i>Monommata maculata</i> Harring & Myers, 1930	S	12
310 <i>Notommata copeus</i> Ehrenberg, 1834	NE, S	4, 5, 7, 13, 23
311 <i>Notommata pachyura</i> (Gosse, 1886)	N, NE, S	4, 9, 12, 13, 17, 20
Incl.: <i>Notommata pachyura f. spinosa</i> : Chittapun & Pholpunthin, 2001		
312 <i>Notommata pseudocerberus</i> de Beauchamp, 1908	S	5, 7
313 <i>Notommata pygmaea</i> Harring & Myers, 1922	S	10
314 <i>Notommata saccigera</i> Ehrenberg, 1830	S	12, 15, 23
315 <i>Taphrocampa annulosa</i> Gosse, 1851	S	10, 23
Family Scaridiidae		
316 <i>Scaridium bostjani</i> Daems & Dumont, 1974	N, NE, S	4, 5, 7, 9, 23
317 <i>Scaridium elegans</i> Segers & De Meester, 1994	NE, S	11, 12, 13
318 <i>Scaridium grande</i> Segers, 1995	N, NE, S	9, 12, 13, 15
319 <i>Scaridium longicaudum</i> (Müller, 1786)	N, NE, C, S	4, 5, 7, 9, 10, 12, 13, 15, 17, 20, 22, 23, 24
Family Synchaetidae		
320 <i>Ploesoma lenticulare</i> Herrick, 1885	NE, C	13, 22
321 <i>Ploesoma hudsoni</i> (Imhof, 1891)	NE, C	4, 13, 17, 20, 22
322 <i>Polyarthra euryptera</i> Wierzejski, 1891	-	3
323 <i>Polyarthra longiremis</i> Carlin, 1943	NE	4
324 <i>Polyarthra major</i> Burckhardt, 1900	N, NE	4, 9
325 <i>Polyarthra minor</i> Voigt, 1904	S	5, 7, 10, 15
326 <i>Polyarthra remata</i> Skorikov, 1896	S	5, 7
327 <i>Polyarthra vulgaris</i> Carlin, 1943	N, NE, C, S	1, 3, 4, 5, 7, 9, 10, 12, 13, 17, 20, 21, 22, 23, 26
<i>Polyarthra cf. vulgaris</i> Carlin, 1943: Sanoamuang, 2007		
328 <i>Synchaeta longipes</i> Gosse, 1887	NE	4
329 <i>Synchaeta pectinata</i> Ehrenberg, 1832	N, NE	4, 9, 17
330 <i>Synchaeta stylata</i> Wierzejski, 1893	NE, C	4, 13, 17, 20, 21

To be continued on next page.

**Tab. 1.** Continued from previous page.

Species	Distribution	References
Family Tetrasiophonidae		
331 <i>Tetrasiphon hydrocora</i> Ehrenberg, 1840	S	12
Family Testudinellidae		
332 <i>Pompholyx complanata</i> Gosse, 1851	N, NE, C	1, 3, 4, 9, 17, 20, 21, 22, 24, 26
333 <i>Testudinella ahlstromi</i> Hauer, 1956 Syn.: <i>Testudinella incisa ahlstromi</i> (Hauer): Chittapun & Pholpunthin, 2001	N, NE, S	9, 12, 13, 17, 20, 24
334 <i>Testudinella amphora</i> Hauer, 1938	NE, S	12, 13, 17, 23
335 <i>Testudinella brevicaudata</i> Yamamoto, 1951	N, NE, S	4, 5, 7, 9, 13, 17, 24
336 <i>Testudinella emarginula</i> (Stenoos, 1898)	NE, S	4, 17, 23
337 <i>Testudinella greeni</i> Koste, 1981	N, NE	9, 13, 17, 24
338 <i>Testudinella mucronata</i> (Gosse, 1886)	S	12
339 <i>Testudinella parva</i> (Ternetz, 1892) Syn.: <i>Testudinella insinuata</i> Hauer, 1938: Segers et al., 2004; <i>T. cf. insinuata</i> Hauer, 1938: Sanoamuang and Savatenalinton, 2001	NE, C, S	4, 12, 13, 15, 17, 20, 21, 24
340 <i>Testudinella patina</i> (Hermann, 1783) Syn.: <i>Testudinella patina</i> (Hermann) f. <i>typica</i> : Sanoamuang et al., 1995 Incl.: <i>Testudinella patina</i> f. <i>intermedia</i> : Sanoamuang et al., 1995; Jithlang & Wongrat, 2006	N, NE, C, S	3, 4, 5, 7, 9, 10, 12, 13, 15, 17, 20, 21, 22, 23, 24, 26
341 <i>Testudinella tridentata</i> Smirnov, 1931	N, NE, C, S	4, 9, 12, 13, 15, 17, 20, 24, 26
342 <i>Testudinella walkeri</i> Koste & Shiel, 1980	NE, S	5, 7, 13, 17, 20
Family Trichocercidae		
343 <i>Trichocerca abilioi</i> Segers & Sarma, 1993	NE	13, 17
344 <i>Trichocerca bicristata</i> (Gosse, 1887)	N, NE, C	3, 4, 9, 13, 17, 20, 22, 24
345 <i>Trichocerca bidens</i> (Lucks, 1912)	NE, C, S	4, 13, 17, 20, 22, 23, 24
346 <i>Trichocerca brasiliensis</i> (Murray, 1913)	N, NE, C, S	4, 9, 10, 12, 13, 15, 17, 20, 22, 23, 24, 26
347 <i>Trichocerca capucina</i> (Wierzejski & Zacharias, 1893)	N, NE, C, S	4, 9, 13, 17, 20, 21, 22, 23, 24
348 <i>Trichocerca chattoni</i> (de Beauchamp, 1907)	NE, C, S	4, 17, 20, 21, 23, 24
349 <i>Trichocerca collaris</i> (Rousselet, 1896)	NE, S	12, 13
350 <i>Trichocerca cylindrica</i> (Imhof, 1891)	NE, C, S	3, 4, 5, 7, 13, 17, 20, 21, 22, 24
351 <i>Trichocerca dixonnuttalli</i> (Jennings, 1903) Syn.: <i>Trichocerca inermis</i> (Linder, 1904): Sanoamuang and Savatenalinton, 2001; Sanoamuang 2007	NE, S	7, 13, 24
352 <i>Trichocerca elongata</i> (Gosse, 1886)	NE, C	4, 13, 17, 21
353 <i>Trichocerca flagellata</i> Hauer, 1937	N, NE, C, S	4, 5, 7, 9, 12, 13, 17, 22, 23, 24
354 <i>Trichocerca cf. gracilis</i> (Tessin, 1890)	S	23
355 <i>Trichocerca hollaerti</i> De Smet, 1990	NE, S	4, 5, 7, 12, 13, 17, 23, 24
356 <i>Trichocerca insignis</i> (Herrick, 1885)	N, NE, S	4, 5, 7, 9, 12, 13, 17, 20, 24
357 <i>Trichocerca insulana</i> (Hauer, 1937) Syn.: <i>Trichocerca montana</i> Hauer, 1956: Sanoamuang & Savatenalinton, 2001	NE, C, S	4, 10, 13, 20, 23, 24, 26, 28
358 <i>Trichocerca longiseta</i> (Schrank, 1802)	NE, C	13, 17, 20, 21, 24
359 <i>Trichocerca mus</i> Hauer, 1938	C, S	22, 23
360 <i>Trichocerca orca</i> (Murray, 1913)	NE	13
361 <i>Trichocerca porcellus</i> (Gosse, 1851)	NE	11, 13, 17
362 <i>Trichocerca pusilla</i> (Jennings, 1903)	N, NE, C, S	1, 3, 4, 9, 10, 13, 17, 19, 20, 21, 22, 23, 24, 25, 26
363 <i>Trichocerca obtusidens</i> (Olofsson, 1918) Syn.: <i>Trichocerca relicta</i> Donner, 1950: Sanoamuang et al., 1995; Pholpunthin, 1997; Segers & Pholpunthin, 1997	NE, S	4, 5, 7
364 <i>Trichocerca rosea</i> (Stenoos, 1898)	NE	13
365 <i>Trichocerca rousseleti</i> (Voigt, 1902)	NE	4
366 <i>Trichocerca ruttneri</i> Donner, 1953	NE, S	4, 5, 7, 13, 23
367 <i>Trichocerca scipio</i> (Gosse, 1886) Syn.: <i>Trichocerca jenningsi</i> Voigt, 1957: Sanoamuang & Savatenalinton, 2001; Chittapun et al., 2002	NE, S	13, 15, 17

To be continued on next page.

**Tab. 1.** Continued from previous page.

Species	Distribution	References
368 <i>Trichocerca siamensis</i> Segers & Pholpunthin, 1997	NE, S	7, 13, 15, 20
369 <i>Trichocerca similis</i> (Wierzejski, 1893)	N, NE, C, S	3, 4, 5, 7, 9, 10, 13, 17, 20, 21, 22, 23, 24
370 <i>Trichocerca similis grandis</i> Hauer, 1965 Syn.: <i>Trichocerca similis</i> (Weirzejski) f. <i>grandis</i> Hauer: Chittapun & Pholpunthin, 2001; Chittapun et al., 2002	C, S	12, 15, 26
371 <i>Trichocerca simoneae</i> De Smet 1990	NE	13, 17, 24
372 <i>Trichocerca stylata</i> (Gosse, 1851)	NE, C	4, 13, 17, 22, 24
373 <i>Trichocerca tenuidens</i> (Hauer, 1931)	NE	4
374 <i>Trichocerca tenuior</i> (Gosse, 1886)	N, NE, S	3, 9, 13, 14, 17, 19, 20, 23, 24
375 <i>Trichocerca tigris</i> (Müller, 1786)	NE, S	4, 13, 20, 23
376 <i>Trichocerca voluta</i> (Murray, 1913) Syn.: <i>Trichocerca tropis</i> Hauer, 1937: Sanoamuang et al., 1995; Pholpunthin, 1997; Segers & Pholpunthin, 1997; Chittapun & Pholpunthin, 2001; Sanoamuang & Savatenalinton, 2001; Segers et al., 2004	NE, S	4, 5, 7, 12, 13, 17
377 <i>Trichocerca vernalis</i> (Hauer, 1936)	NE	13
378 <i>Trichocerca weberi</i> (Jennings, 1903)	NE, S	13, 17, 20, 23
Family Trichotriidae		
379 <i>Macrochaetus collinsii</i> (Gosse, 1867)	N, NE, C, S	2, 4, 9, 10, 12, 13, 15, 17, 20, 22, 23, 24
380 <i>Macrochaetus danneelae</i> Koste & Shiel, 1983	N, NE	9, 13, 17, 24
381 <i>Macrochaetus longipes</i> Myers, 1934	N, NE, C	4, 9, 13, 17, 22, 24
382 <i>Macrochaetus sericus</i> (Thorpe, 1893)	NE, S	4, 5, 7, 13, 17, 20, 24
383 <i>Macrochaetus subquadratus</i> (Perty, 1850)	NE, C, S	12, 13, 17, 22
384 <i>Trichotria tetractis</i> (Ehrenberg, 1830)	N, NE, C, S	4, 5, 7, 9, 12, 13, 15, 17, 20, 21, 22, 24
385 <i>Wolga spinifera</i> (Western, 1894)	NE	11, 17, 24
Family Trochospaeridae		
386 <i>Filinia brachiata</i> (Rousselet, 1901)	C	3, 21
387 <i>Filinia camasecla</i> Myers, 1938	N, NE, C	4, 9, 13, 17, 20, 21, 22, 24, 26, 28
388 <i>Filinia longiseta</i> (Ehrenberg, 1834) Incl.: <i>Filinia longiseta</i> var. <i>limnetica</i> : Jithlang & Wongrat, 2006	N, NE, C, S	1, 3, 4, 9, 10, 17, 20, 21, 22, 23, 24, 26
389 <i>Filinia novaezealandiae</i> Shiel & Sanoamuang, 1993	NE, C, S	10, 13, 17, 20, 21, 22, 24, 26, 28
390 <i>Filinia opoliensis</i> (Zacharias, 1898) Syn.: <i>Tetramastix opoliensis</i> Zacharias, 1898: De Ridder, 1971	N, NE, C, S	1, 3, 4, 9, 10, 12, 13, 17, 20, 21, 22, 23, 24, 26
391 <i>Filinia pejleri</i> Hutchinson, 1964	N, NE	4, 9
392 <i>Filinia saltator</i> (Gosse, 1886)	N, NE	4, 9, 17
393 <i>Filinia terminalis</i> (Plate, 1886)	NE	3, 4
394 <i>Trochospaera aequatorialis</i> Semper, 1872	N, NE, C	3, 4, 9, 17, 26
Bdelloidea		
Family Habrotrochidae		
395 <i>Habrotrocha ampulla</i> Murray, 1911	C	2
396 <i>Habrotrocha angusticollis</i> (Murray, 1905)	C	2
Family Philodiniae		
397 <i>Dissotrocha aculeata</i> (Ehrenberg, 1832)	C, S	2, 12, 15, 23
398 <i>Dissotrocha macrostyla</i> (Ehrenberg, 1838)	C	2

*N*, northern; *NE*, northeastern; *C*, central; *S*, southern; -, no detail about region in publication; 1, De Ridder (1971); 2, Koste (1975); 3, Boonsom (1984); 4, Sanoamuang et al. (1995); 5, Pholpunthin (1997); 6, Sanoamuang and Segers (1997); 7, Segers and Pholpunthin (1997); 8, Pholpunthin and Chittapun (1998); 9, Sanoamuang (1998); 10, Chittapun et al. (1999); 11, Sanoamuang and Savatenalinton (1999); 12, Chittapun and Pholpunthin (2001); 13, Sanoamuang and Savatenalinton (2001); 14, Segers and Chittapun (2001); 15, Chittapun et al. (2002); 16, Chittapun et al. (2003); 17, Segers et al. (2004); 18, Athibai et al. (2005); 19, Chittapun et al. (2005); 20, Savatenalinton and Segers (2005); 21, Jithlang and Wongrat (2006); 22, Teeramaethee et al. (2006); 23, Chittapun et al. (2007); 24, Sanoamuang (2007); 25, Savatenalinton and Segers (2008); 26, Chittapun et al. (2009); 27, Segers and Savatenalinton (2010); 28, Chittapun (2011); 29, Meksuwan et al. (2011).

**Tab. 2.** List of Oriental and Thai taxa.

Oriental taxa	Thai taxa
1 <i>Brachionus donneri</i> Brehm, 1951	1 <i>Brachionus srisumonae</i> Segers, Kothetip & Sanoamuang, 2004
2 <i>Brachionus murphyi</i> Sudzuki, 1989	2 <i>Colurella psammophila</i> Segers & Chittapun, 2001
3 <i>Cephalodella songkhaensis</i> Segers & Pholpunthin, 1997*	3 <i>Encentrum pornsilpi</i> Segers & Chittapun, 2001
4 <i>Colurella sanoamuangae</i> Chittapun, Pholpunthin & Segers, 1999	4 <i>Keratella taksinensis</i> Chittapun, Pholpunthin & Segers, 2002
5 <i>Filinia camasecla</i> Myers, 1938	5 <i>Lecane isanensis</i> Sanoamuang & Savatenalinton, 2001
6 <i>Habrotrocha recumbens</i> Bartoš, 1963	6 <i>Lecane junki</i> Koste, 1975
7 <i>Keratella edmondsoni</i> Ahlstrom, 1943	7 <i>Lecane kunthuleensis</i> Chittapun, Pholpunthin & Segers, 2003
8 <i>Lecane acanthinula</i> (Hauer, 1938)	8 <i>Lecane lungae</i> Savatenalinton & Segers, 2005
9 <i>Lecane blachei</i> Berzins, 1973	9 <i>Lecane martensi</i> Savatenalinton & Segers, 2008
10 <i>Lecane bulla diabolica</i> (Hauer, 1936)	10 <i>Lecane micrognatha</i> Segers & Savatenalinton, 2010
11 <i>Lecane minuta</i> Segers, 1994	11 <i>Lecane niwati</i> Segers, Kothetip & Sanoamuang, 2004
12 <i>Octotrocha speciosa</i> Thorpe, 1893	12 <i>Lecane segersi</i> Sanoamuang, 1996
13 <i>Ptygura thaleniensis</i> Meksuwan, Pholpunthin & Segers, 2011	13 <i>Lecane superaculeata</i> Sanoamuang & Segers, 1997* <sup>a</sup>

\*Reliably recorded from Cambodia by Sor (2011); <sup>a</sup>recorded, without substantiation, from Northeast India by Sharma and Sharma (2005).

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