

## Supplemental material 1

**Table 1S.** Species list and presence of crustaceans from plankton and meiobenthos in water bodies of four altitudinal areas of the Anabar Plateau in July 2023. Range types: ARC (P) – Subarctic and Arctic of Palearctica, ARC (H) – Subarctic and Arctic of Holarctic, C – cosmopolite or widespread unrevised species, EA-NA – East Asian-North American (Beringian), EAS – East Asian-Siberian, END – endemic of the north of Middle Siberia, HOL – Holarctic, PAL – Palearctic, WP – West Palearctic; \* – species noted for the first time, \*\* – species new to science.

Taxon	Range type	Area (Altitude m a. s. l.)			
		Highlands		Foothills	Foot
		Central part (355-382 m)	Western slopes (235-259 m)	Foothills (50-200 m)	Foot (50 > m)
Class Branchiopoda					
Order Anostraca					
Family Chirocephalidae					
<i>Polyartemia forcipata</i> Fischer, 1851	ARC (P)	+	+	+	
Order Laevicaudata					
Family Lynceidae					
<i>Lynceus brachyurus</i> O.F. Müller, 1776	HOL				+
Subclass Cladocera					
Order Anomopoda					
Family Bosminidae					
<i>Bosmina (Bosmina) longirostris</i> (O.F. Müller, 1785)	C			+	
<i>B. (Eubosmina) coregoni</i> Baird, 1857	PAL		+	+	+
Family Eurycercidae					
<i>Eurycercus (Eurycercus) lamellatus</i> (O.F. Müller, 1776)	PAL			+	+
* <i>E. (E.) pompholygodes</i> Frey, 1975	ARC (P)		+	+	+
Family Chydoridae					
<i>Acroperus harpae</i> (Baird, 1834)	PAL		+	+	+
<i>Alona guttata</i> Sars, 1862	C			+	
* <i>Alonella excisa</i> (Fischer, 1854)	C			+	+
<i>Al. exigua</i> (Lilljeborg, 1901)	C			+	+
* <i>Al. nana</i> (Baird, 1850)	C	+	+	+	+
<i>Alonopsis elongata</i> (Sars, 1861)	ARC (P)	+		+	
<i>Biapertura affinis</i> (Leydig, 1860)	PAL	+			+
* <i>Bp. sibirica</i> (Sinev, Karabanov et Kotov, 2020)	ARC (P)			+	
* <i>Camptocercus fennicus</i> Stenroos, 1898	PAL			+	
<i>C. rectirostris</i> Schödler, 1862	PAL			+	+

* <i>Chydorus belaevae</i> Klimovsky & Kotov, 2015	ARC (P)			+	
<i>Ch. cf. sphaericus</i> (O.F. Müller, 1785)	C	+	+	+	+
<i>Coronatella rectangula</i> (Sars, 1862)	C	+	+	+	+
* <i>Graptoleberis testudinaria</i> (Fischer, 1851)	C				+
<i>Pleuroxus aduncus</i> (Jurine, 1820)	C	+			+
<i>P. striatus</i> (Schödler, 1862)	PAL			+	
<i>P. trigonellus</i> (O.F. Müller, 1785)	PAL	+	+	+	+
<i>P. truncatus</i> (O.F. Müller, 1785)	PAL				+
* <i>P. yakutensis</i> Garibian, Neretina, Klimovsky & Kotov, 2018	EAS				+
* <i>Prendalona werestschagini</i> (Sinev, 1999)	ARC (P)			+	
* <i>Pseudochydorus globosus</i> (Baird, 1843)	HOL				+
Family Macrothricidae					
<i>Lathonura rectirostris</i> (O.F. Müller, 1785)	C			+	
Family Ophryoxidae					
* <i>Ophryoxus gracilis</i> Sars, 1862	PAL			+	
<i>O. kolymensis</i> Smirnov, 1992	EA-NA			+	+
Family Daphnidae					
<i>Daphnia (Daphnia) cristata</i> Sars, 1862	PAL			+	
<i>D. (D.) galeata</i> Sars, 1864	PAL				+
<i>D. (D.) longiremis</i> Sars, 1862	HOL				+
<i>D. (D.) longispina</i> O.F. Müller, 1776	PAL			+	+
<i>D. (D.) middendorffiana</i> Fischer, 1851	ARC (P)	+			+
<i>D. (D.) pulex</i> Leydig, 1860	C	+	+	+	
* <i>Ceriodaphnia laticaudata</i> P.E. Müller, 1867	C			+	
* <i>Cr. megops</i> Sars, 1862	PAL			+	+
* <i>Cr. pulchella</i> Sars, 1862	C			+	+
* <i>Cr. quadrangula</i> (O.F. Müller, 1785)	C			+	+
* <i>Cr. rotunda</i> (Straus, 1820)	PAL				+
<i>Scapholeberis mucronata</i> (O.F. Müller, 1776)	PAL			+	+
* <i>Simocephalus vetulus</i> (O.F. Müller, 1776)	PAL				+
Order Ctenopoda					
Family Sididae					
* <i>Sida crystallina</i> (O.F. Müller, 1776)	PAL			+	+
Family Holopediidae					
<i>Holopedium gibberum</i> Zaddach, 1855	ARC (P)	+	+	+	
Order Onychopoda					
Family Polyphemidae					
<i>Polyphemus pediculus</i> (Linnaeus, 1761)	C		+	+	+
Subclass Copepoda					

Order Calanoida

Family Temoridae

<i>Hetercope appendiculata</i> Sars, 1863	ARC (P)			+	+
<i>H. borealis</i> (Fischer, 1851)	ARC (P)	+	+	+	+

Family Diaptomidae

* <i>Acanthodiaptomus tibetanus</i> (Daday, 1907)	EAS				+
<i>Arctodiaptomus dentifer</i> (Smirnov, 1928)	PAL				+
<i>Eudiaptomus graciloides</i> (Lilljeborg, 1888)	PAL				+
<i>Leptodiaptomus angustilobus</i> (Sars, 1898)	ARC (H)		+	+	
<i>Mixodiaptomus theeli</i> (Lilljeborg in Guerne & Richard, 1889)	ARC (H)		+	+	
** <i>M. sp. nov.</i>	END	+	+		

Order Cyclopoida

Family Cyclopidae

<i>Eucyclops arcanus</i> Alekseev, 1990	EAS	+	+	+	+
<i>Ec. denticulatus</i> (Graeter, 1903)	PAL		+	+	+
<i>Ec. macruroides</i> (Lilljeborg, 1901)	PAL				+
<i>Ec. macrurus</i> (Sars., 1863)	HOL				+
<i>Ec. serrulatus</i> (Fischer, 1851)	C				+
** <i>Ec. sp. nov.</i>	END			+	+
<i>Macrocyclops albidus</i> (Jurine, 1820)	C			+	+
<i>Paracyclops fmbriatus</i> (Fischer, 1853)	C			+	+
<i>Acanthocyclops capillatus</i> (Sars, 1863)	ARC (H)	+	+	+	+
* <i>Acn. venustus</i> s. lat. (Norman & T. Scott, 1906)	ARC (P)	+			+
<i>Acn. vernalis</i> (Fischer, 1853)	C	+	+	+	+
** <i>Acn. sp. nov.</i>	END		+		
* <i>Cryptocyclops bicolor</i> (Sars, 1863)	C				+
* <i>Cyclops cf. abyssorum</i> Sars, 1863	PAL		+		
* <i>Cyclops aff. kolensis</i> Lilljeborg, 1901	ARC (H)			+	+
<i>Cyclops scutifer</i> Sars, 1863	HOL	+			
* <i>C. sibiricus</i> Lindberg, 1949	EA-NA		+		
* <i>Diacyclops crassicaudis</i> (Sars, 1863)	ARC (H)	+	+		
<i>Dc. cf. bicuspidatus</i> (Claus, 1857)	C	+		+	+
* <i>Dc. nanus</i> (Sars, 1863)	ARC (H)			+	
* <i>Dc. cf. haueri</i> Kiefer, 1931	HOL			+	
* <i>Dc. languidoides</i> (Lilljeborg, 1901)	PAL	+	+		
* <i>Megacyclops magnus</i> (Marsh, 1920)	EA-NA		+	+	+
<i>Mg. viridis</i> (Jurine, 1820)	C	+	+	+	+
<i>Mesocyclops leuckartii</i> (Claus, 1857)	C			+	+
* <i>Microcyclops rubellus</i> (Lilljeborg, 1901)	HOL				+

Order Harpacticoida

Family Canthocamptidae

* <i>Attheyella dentata</i> Poggenpol, 1874	PAL			+	+
<i>At. nordenskioldii</i> (Lilljeborg, 1902)	ARC (H)		+	+	+
* <i>Bryocamptus arcticus</i> (Lilljeborg, 1902)	ARC (P)	+	+	+	+
* <i>Br. vej dovskiyi</i> (Mrázek, 1893)	HOL			+	+
* <i>Br. putoranus</i> Novikov, Sharafutdinova & Chertoprud, 2023	END			+	+
* <i>Br. umiatensis</i> Wilson M.S., 1958	EA-NA		+	+	
<i>Canthocamptus glacialis</i> Lilljeborg, 1902	ARC (P)				+
* <i>Cn. waldemarschneideri</i> Novikov & Sharafutdinova, 2022	END				+
* <i>Epactophanes richardi</i> Mrázek, 1893	C			+	+
* <i>Maraenobiotus insignipes</i> (Lilljeborg, 1902)	ARC (P)			+	
** <i>Mr. sp. nov.</i>	END	+			
<i>Moraria duthiei</i> (T. Scott & A. Scott, 1896)	ARC (P)			+	+
* <i>Mrr. mrazeki</i> T. Scott, 1903	ARC (P)	+	+	+	+
* <i>Pesceus reductus</i> (Wilson M.S., 1956)	EA-NA	+			

Family Parastenocaridae

* <i>Parastenocaris brevipes</i> Kessler, 1913	HOL			+	
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Family Phyllognathopodidae

* <i>Phyllognathopus paludosus</i> Mrázek, 1893	HOL			+	+
<b>Number of species</b>		<b>26</b>	<b>30</b>	<b>64</b>	<b>65</b>

**Table 2S.** Spearman correlation between structural characteristics of zooplankton and meiobenthos assemblages and environmental factors. Significant values are highlighted in bold ( $p < 0.05$ ). Abbreviations: MOUNT – mountainousness (altitude a.s.l.), TYPE – type of water body, TEMP – water temperature, MINER – total mineralization, PH– water acidity, MACR – macrophyte assemblage, SUBSTR – type of bottom sediments, AREA – water area, log-transformed, PERM – permafrost depth, FLOW – flowage, FISH – presence or absence of fish in the water body.

#### ZOOPLANKTON

	NO SP	ABUND	CLAD	COP	Cl/Cop
MOUNT	<b>-0.447</b>	-0.253	-0.216	-0.054	-0.159
TYPE	<b>0.378</b>	0.199	0.049	0.236	-0.084
TEMP	0.121	0.171	0.099	0.024	0.083
MINER	0.294	0.013	0.032	-0.125	0.106
PH	0.236	-0.082	-0.85	-0.15	-0.009
MACR	<b>0.603</b>	0.177	0.073	0.231	-0.053
SUBSTR	-0.118	-0.136	-0.066	-0.133	0.034
AREA	<b>0.384</b>	-0.058	-0.245	0.179	-0.246
PERM	<b>0.481</b>	0.262	0.282	-0.008	0.256
FLOW	0.232	-0.104	-0.252	0.155	<b>-0.358</b>
FISH	<b>0.333</b>	-0.041	-0.102	-0.045	-0.067

#### MEIOBENTHOS

	NO SP	ABUND	CLAD	COP	Cl/Cop
MOUNT	<b>-0.321</b>	-0.202	0.083	-0.228	0.243
TYPE	0.084	-0.082	-0.084	-0.107	-0.138
TEMP	0.081	0.036	0.026	-0.31	0.003
MINERAL	<b>0.351</b>	0.245	-0.055	0.259	-0.221
PH	0.187	-0.002	0.054	0.013	0.087
MACROPH	0.293	0.134	0.133	0.049	0.142
SUBSTR	0.059	0.162	-0.063	0.194	-0.274
AREA	0.273	0.193	0.139	0.116	-0.039
PERM	<b>0.325</b>	0.234	-0.033	0.253	-0.205
FLOW	-0.033	-0.173	-0.037	-0.129	0.103
FISH	<b>0.348</b>	0.186	0.166	0.093	0.169

**Table 3S.** The results of DistLM analysis (AIC criterion, Bray-Curtis similarity), demonstrating the factors affecting the structure of zooplankton and meiobenthos assemblages. Significant factors are highlighted in bold ( $p < 0.05$ ). Abbreviations: MOUNT – mountainousness (altitude a.s.l.), TYPE – type of water body, TEMP – water temperature, MINER– total mineralization, PH – water acidity, MACR – macrophyte assemblage, SUBSTR – type of bottom sediments, AREA – water area, log-transformed, PERM – permafrost depth, FLOW – flowage, FISH – presence or absence of fish in the water body.

#### Z O O P L A N K T O N

	AIC	SS (trace)	Pseudo-F	P	prop.	cumul.
<b>MOUNT</b>	320,72	13757	4,7589	<b>0,001</b>	0,1113	0,1113
TYPE	321,56	3152,1	1,0931	0,337	0,025501	0,1368
TEMP	321,77	4645,4	1,6387	0,054	0,037582	0,17438
MINER	324,4	3440,5	1,2211	0,247	0,027834	0,20221
PH	323,3	2546,4	0,90122	0,55	0,0206	0,22281
<b>MACR</b>	322,98	5546,7	2,0221	<b>0,009</b>	0,044873	0,26769
SUBSTR	323,86	2485,8	0,90359	0,558	0,02011	0,2878
AREA	324,18	3618,6	1,3289	0,161	0,029275	0,31707
<b>PERM</b>	324,02	4446,2	1,668	<b>0,049</b>	0,03597	1,35304
<b>FLOW</b>	323,67	4571,6	1,7584	<b>0,046</b>	0,036985	0,39003
FISH	324,79	1631,6	0,61932	0,852	0,0132	0,40323

#### M E I O B E N T H O S

	AIC	SS (trace)	Pseudo-F	P	prop.	cumul.
<b>MOUNT</b>	321,78	13474	4,5388	<b>0,001</b>	0,1067	0,1067
TYPE	322,36	3958,6	1,3456	0,203	0,031346	0,13804
<b>TEMP</b>	322,22	5665,3	1,9765	<b>0,039</b>	0,044861	0,1829
<b>MINER</b>	321,67	6364,7	2,3007	<b>0,017</b>	0,050399	0,2333
PH	323,04	1524,4	0,54387	0,863	0,012071	0,24537
<b>MACR</b>	322,72	5353,6	1,9642	<b>0,039</b>	0,042393	0,28777
SUBSTR	322,73	4372,2	1,653	0,101	0,034621	0,32239
AREA	323,68	2222,5	0,8266	0,596	0,017599	0,33999
PERM	324,07	3289,9	1,2328	0,271	0,026051	0,36604
FLOW	324,86	2376	0,88697	0,542	0,018814	0,38485
FISH	325,13	3284,4	1,2361	0,284	0,026008	0,41086