

Table S1. Correlation between diversity indices (Shannon diversity (H) and Pielou's evenness (J)) for ciliate community and bacteria community calculated with Pearson's correlation coefficient  $r$ .

	df	$r$	$p$
Ciliate diversity H, bacteria diversity H	17	0.19	0.44
Ciliate evenness J, bacteria evenness J	17	0.11	0.66

Table S2. Mantel test on Bray-Curtis ( $BC$ ) dissimilarity, either binary ( $BC_{bin}$ ) or taking abundance into account ( $BC$ ), of ciliate communities in water samples and on glass beads with both abundances considered and binary. Mean dissimilarity  $\pm$  standard error of the mean and p-value for the Mantel test. Pearson's correlation  $r$  reported along with the p-value for the coefficient.

	Index	Mean	$\pm$ SE	$P$ Mantel	$r$	$P r$
Water samples	$BC$	0.77	0.01	0.65	-0.04	0.62
Glass bead	$BC$	0.69	0.02	0.41	0.14	0.24
Water samples	$BC_{bin}$	0.57	0.01	0.53	-0.05	0.51
Glass beads	$BC_{bin}$	0.59	0.01	0.51	0.09	0.43
Water samples 5%>taxa	$BC$	0.65	0.02	0.56	0.04	0.63
Water samples 5%>taxa	$BC_{bin}$	0.10	0.01	0.08	0.14	0.08
Water samples 5%<taxa	$BC$	0.82	0.01	0.49	-0.06	0.47
Water samples 5%<taxa	$BC_{bin}$	0.62	0.01	0.31	-0.07	0.34
Water samples 2%>taxa	$BC$	0.73	0.01	0.53	-0.05	0.54
Water samples 2%>taxa	$BC_{bin}$	0.25	0.01	0.53	-0.05	0.53
Water samples 2%< taxa	$BC$	0.92	0.01	0.76	0.03	0.75
Water samples 2%< taxa	$BC_{bin}$	0.78	0.01	0.59	-0.05	0.57

Table S3. Mean number and standard deviation of reads from each sample type for all ciliate taxa retrieved and used for the analysis in this study.

	Amphipods (n=3)		Glass beads (n=13)		Water (n=42)	
	Mean	SD	Mean	SD	Mean	SD
Acineria	0	0	0.23	0.83	3.95	15.96
Acineta	0	0	112.31	259.48	6.95	29.44
Amphileptus	0	0	0	0	1.24	8.02
Amphisiella	0	0	0	0	20.33	131.3
Anteholosticha	0	0	0.54	1.33	123.07	416.22
Apobryophyllum	0	0	0	0	1.52	6.39
Apocarchesium	0	0	0	0	0.24	1.1
Apocoleps	0	0	0	0	8.98	35.9
Apokeronopsis	0	0	1.54	5.55	8.69	46.88
Apostomatia	5	6.24	0	0	0	0
Arcuospathidium	0	0	0	0	4.05	12.15
Aspidisca	0	0	104.62	353.94	83.31	275.12
Bergeriella	0	0	0	0	1.79	7.06
Blepharisma	0	0	0	0	10.88	27.91
BOLA439	0	0	30.23	67.54	3.5	14.59
Brachonella	0	0	0.31	1.11	0	0
Bresslauides	0	0	0.23	0.83	0	0
Bromeliophrya	0	0	1.15	2.88	0.29	1.2
Bromeliothrix	0	0	0	0	2.1	13.58
Bryometopus	0	0	6.46	17.4	15.4	35.76
Cardiostomatella	0	0	0	0	5.86	25.25
Cariaco_Basingroup1	0	0	0	0	0.26	1.7
Chaenea	0	0	0	0	1.14	3.77
Chilodonella	0	0	83.23	227.92	64.45	223.04
Chlamydodon	0	0	0	0	0.21	1.39
Chlamydonella	0	0	26.46	31.21	28.33	51.68
Choreotrichia	0	0	15.77	34.64	21.29	125.1
Choreotrichia_unc	0	0	19.15	69.06	0.76	3.94
Cinetochilum	0	0	0.54	1.66	1.29	5.08
Climacostomum	0	0	0	0	0.05	0.31
Cohnilembus	0	0	0	0	0.62	2.94
Coleps	0	0	0	0	0.05	0.31
Colpidium	0	0	0.54	1.33	7.81	36.44
Colpodida	0	0	0.15	0.55	2.02	12.06
Cothurnia	0	0	5.62	14.77	0	0
Cryptocaryon	0	0	3.15	6.3	27.43	97.73
CV1_2A_17	0	0	30.15	59.9	171.02	208.1
CV1_B1_45	0	0	0	0	0.71	3.8
Cyclidium	0	0	0	0	0.62	1.87
Cyrtolophosidida	0	0	0.69	2.5	6.69	26.74

Cyrtolophosis	0	0	0	0	11.5	51.76
Cyrtophoria	0	0	361.46	538.97	134.79	264.74
Deviata	0	0	0	0	0.52	3.39
Dexiotricha	0	0	0	0	0.17	1.08
Didinium	0	0	8.85	24.27	65.05	316.36
Dileptus	0	0	2.08	5.54	12.4	66.37
Dimacrocaryon	0	0	0	0	0.55	3.55
Enchelys	0	0	0	0	0.07	0.46
Engelmanniella	0	0	0.62	2.22	47.07	300.8
Entorhipidium	0	0	8	25.99	0.64	2.66
Ephelota	0	0	0.31	1.11	0	0
Epiphyllum	0	0	0	0	0.05	0.31
Epispathidium	0	0	0	0	1.69	7.68
Epistylis	0	0	0	0	6.38	28.63
Etoschophrya	0	0	0.85	3.05	3.88	10.93
Euplotes	0	0	1	3.61	2	6.94
Exocolpoda	0	0	0	0	0.48	3.09
Frontonia	0	0	0	0	0.14	0.65
Furgasonia	0	0	0	0	4.24	14.6
Fusiforma	4476.67	248.96	1.69	3.38	0	0
FV18_2A2	0	0	0	0	0.07	0.34
Glaucoma	0	0	442	1230.56	70.48	360.52
Glauconema	0	0	1.08	3.88	0.48	3.09
Gonostomum	0	0	0.77	2.49	2.57	11.64
Halteria	0	0	2.08	7.49	22.45	70.15
Haptoria	0	0	125.08	146.42	123.6	237.44
Haptoria_unc	0	0	1.15	3.87	11.07	26.53
Hausmanniella	0	0	0	0	0.55	3.55
Heliophrya	0	0	0	0	0.02	0.15
Hemicycliostyla	0	0	0.23	0.83	0	0
Hemiophrys	0	0	0	0	0.07	0.46
Hemiurosomoida	0	0	35.54	124.55	128.5	373.22
Holosticha	0	0	298.77	441.3	283.07	473.92
Homalogastra	0	0	0	0	1.64	6.24
Homalozoon	0	0	0	0	0.4	2.62
Hymenostomatia	0	0	1562.62	1320.19	518.07	859.98
Hypocoma	2.33	4.04	0	0	0.05	0.31
Hypotrichia	0	0	8.23	16.2	114.05	263.39
Hypotrichia_unc	0	0	42.92	146.55	181.14	392.94
Ichthyophthirius	0	0	0	0	0.02	0.15
IN2411	0	0	4.23	15.25	0	0
Kentrophoros	0	0	0	0	0.02	0.15
Lacrymaria	0	0	1.62	5.25	9.33	24.03
Lembadion	0	0	0.23	0.83	18.33	109.64
Leptopharynx	0	0	0	0	0.21	1.39

Litonotus	0	0	0	0	11.95	53.24
Loxophyllum	0	0	0	0	0.67	4.32
Meseres	0	0	0	0	0.83	5.4
Metaradiophrya	0	0	0	0	0.17	0.58
Metaurostylopsis	0	0	0	0	0.4	2.33
Metopus	0	0	0	0	13.24	64.33
Miamiensis	300.33	315.66	2.38	8.6	1.83	9.7
Microdiaphanosoma	0	0	0.31	1.11	0.02	0.15
Microxysma	0	0	0	0	0.31	1.51
Nassophorea	0	0	0	0	18.57	74.19
Nassophorea_unc	0	0	16.85	33.03	0.52	3.39
Novistrombidium	0	0	0	0	0.02	0.15
Obertrumia	0	0	0.54	1.94	18.79	59.57
Odontochlamys	0	0	7.46	26.9	2.17	9.44
Oligohymenophorea_unc	0	0	0	0	0.83	4.5
Oligotrichia	0	0	0	0	0.24	1.27
Oligotrichia_unc	0	0	0.46	1.66	0.48	3.09
Ophrydium	0	0	0	0	0.69	4.17
Ophryoglena	0	0	27.31	66.23	45.05	147.4
Oxytricha	0	0	0.77	2.05	47.45	157.41
Oxytrichidae	0	0	0.08	0.28	0.6	3.4
Paraclausilocola	0	0	0.08	0.28	0.81	2.4
Parallelostrombidium	0	0	0	0	0.05	0.31
Paramecium	26.67	41.93	0	0	15.6	57.49
Paranophrys	15.33	26.56	0	0	0	0
Paraurostyla	0	0	3.15	10.23	143.57	570.85
Paruroleptus	0	0	0.23	0.83	0	0
Peniculia	0	0	0.62	2.22	8.1	52.15
Peniculia_unc	0	0	0	0	55.69	186.21
Peritrichia	4	6.93	7.38	26.33	1.33	7.27
Phialina	0	0	0	0	0.31	2.01
Philasterides	0	0	0	0	0.17	1.08
Placus	0	0	0.31	1.11	2.07	9.84
Plagiopogon	0	0	0.92	3.33	0.36	1.46
Platynematum	0	0	0	0	4.86	14.41
Platyophrya	0	0	4.69	8.99	54.9	149.61
Pleuronema	0	0	0	0	3.14	16.72
Ponturostyla	0	0	0	0	0.07	0.46
Prorodon	0	0	5.69	17.04	0.12	0.77
Protocyclidium	0	0	1.38	4.99	19	62.44
Protospathidium	0	0	0	0	0.12	0.77
Psammomitra	0	0	0	0	0.31	1.57
Pseudochilonopsis	0	0	756.69	1047.15	271	636.36
Pseudocollinia	0.33	0.58	0	0	0	0
Pseudogastrostyla	0	0	0	0	31.79	147.59

Pseudomonilicaryon	0	0	0	0	0.31	1.44
Pseudoplatyophyra	0	0	0.38	1.39	4.52	11.99
Pseudovorticella	0	0	7.15	25.79	0	0
Rigidothrix	0	0	10.46	36.53	2.07	6.23
Rurikoplites	0	0	0	0	2.48	10.17
Sathrophilus	0	0	0.38	0.96	0	0
Schizocaryum	0	0	0	0	1.14	7.41
Scuticociliatia	0	0	0.62	1.71	95.07	131.28
Scuticociliatia_unc	23.33	33.62	1.54	2.76	1.36	3.67
Sorogena	0	0	22.38	57.33	0.24	1.39
Spathidium	0	0	0	0	1.33	8.64
Spirostomum	0	0	0.46	1.66	6.21	40.27
Spirostrombidium	0	0	2	4.88	9.6	50.63
Stenosemella	0	0	0.23	0.6	1.02	5.63
Stentor	0	0	3.54	11.34	7.4	33.15
Sterkiella	0	0	0	0	12.21	79.16
Stokesia	0	0	20.23	72.94	181.38	627.38
Strobilidium	0	0	0	0	13.64	38.98
Strombidinopsis	0	0	0	0	0.02	0.15
Strombidium	0	0	3.85	10.92	1.71	4.5
Stylonychia	0	0	3.54	12.76	23.98	72.15
Suctoria	7.33	6.43	15.85	51.53	6.95	40.74
Telotrochidium	0	0	0	0	3.24	11.36
Tetrahymena	20.33	35.22	151.77	196.21	840.5	997.41
Teuthophrys	0	0	6.54	22.4	34.19	85.83
Tintinnopsis	0	0	0.38	1.12	0	0
Tokophrya	0	0	0	0	9.24	43.73
Trichodina	51.33	67.66	0	0	0	0
Trichopodiella	0	0	0	0	0.48	2.2
Trithigmostoma	0	0	136.31	362.13	148.88	288.76
Trochilia	0	0	343.69	390.76	208.19	459.25
Undella	0	0	0	0	0.48	3.09
Uroleptus	0	0	0	0	75.31	394.65
Urosoma	0	0	0	0	2.05	7.27
Urospinula	0	0	0	0	0.1	0.62
Urostyla	0	0	0	0	0.43	1.95
Vorticella	0	0	0.69	2.5	8.05	33.4
Woodruffides	0	0	0	0	9.86	34.93
Xystonella	0	0	0.54	1.94	1.19	7.26
Zosterodasys	0	0	8.69	19.37	25.24	56.63

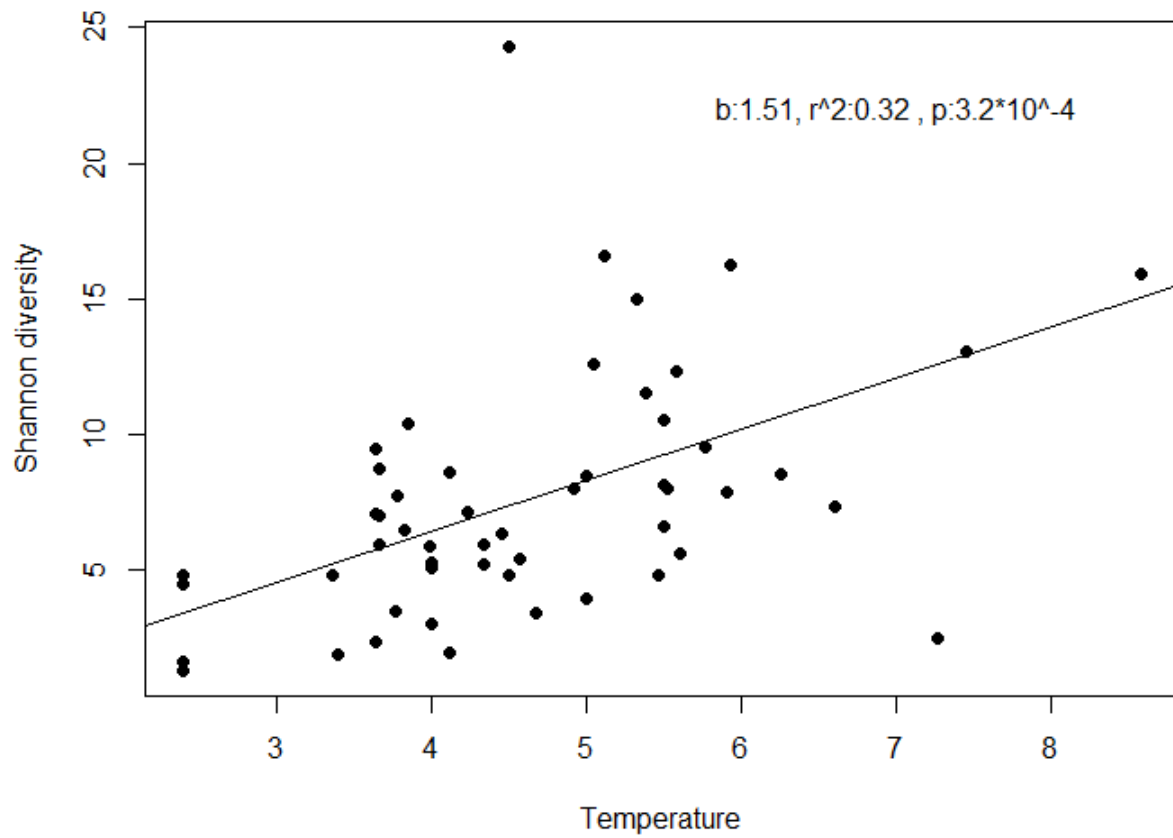


Fig S1. Shannon diversity for ciliate communities as a function of temperature ( $^{\circ}\text{C}$ ) in cold groundwater springs in Iceland. Slope ( $b$ ) = 1.51,  $r^2 = 0.31$ ,  $p = 3.2 \cdot 10^{-4}$ .

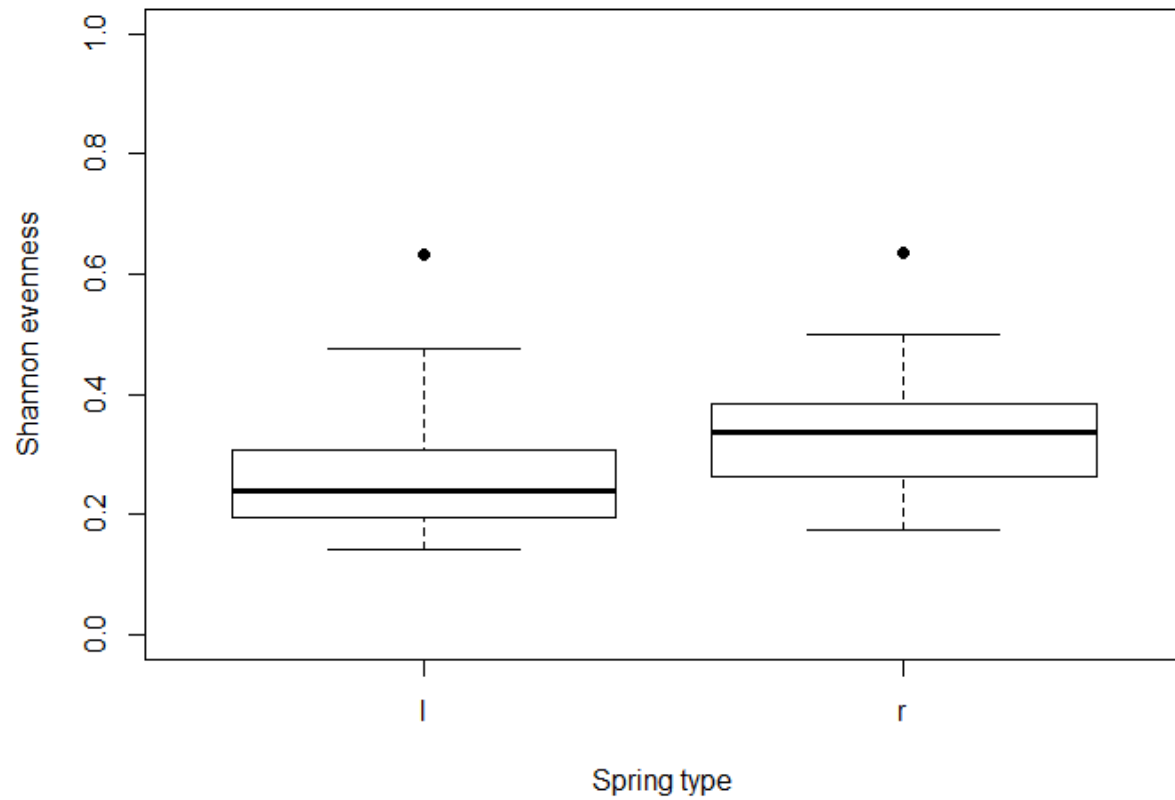


Fig S2. Shannon evenness of ciliate communities as a function of spring type (limnocrene (l) and rheocrene (r)) in cold groundwater springs in Iceland. Slope ( $b$ ) = 0.25,  $r^2$  = 0.18,  $p$  = 0.02.

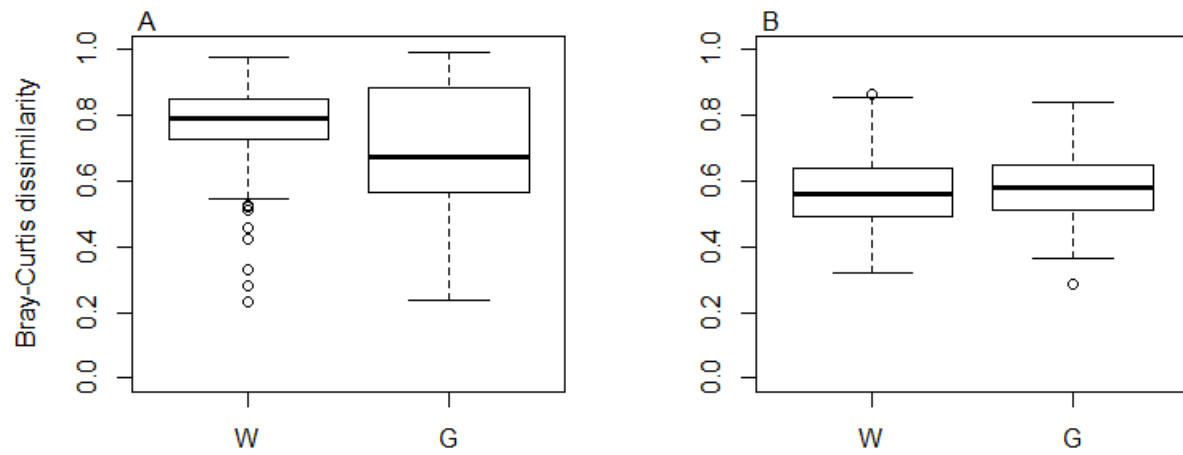


Fig S3. Community dissimilarities calculated with Bray-Curtis distances. A Abundance of taxa is taken into account ( $BC$ ). B Presence-absence of taxa is considered ( $BC_{bin}$ ). W: Water samples, G: Glass beads.