

## Supplementary Information

**Table S1** Range of environmental factors of the sampled springs (n=71). Species richness = number of found diatom species per sampling site, elevation [m], cond = conductivity [ $\mu\text{S}/\text{cm}$ ], temp = temperature [ $^{\circ}\text{C}$ ], flow = flow-velocity and shading conditions in a five-point scale according to Cantonati et al. (2007), N =  $\text{NO}_3^{-\text{H}}$  [mg/l], Cl =  $\text{Cl}^{-}$  [mg/l]. \* = measurement below threshold.

	Species	Elevation	Cond	Shading	pH	Flow	Temp	N	Cl
Minimum	5	520	13	1	6.22	1	3.5	0*	0.165
Maximum	138	2527	724	5	8.24	5	21.7	35.2	13.3
Mean	66.9	1495	312	2.7	7.4	2.5	10.0	3.4	2.5

**Table S2** Sampled microhabitats in 66 near natural springs in Switzerland and their definition.

Microhabitat	Definition	Sampling
Stone	Stones or gravel ( $\varnothing < 2\text{cm}$ ) on the spring ground. Permanently submerged	4 cm <sup>2</sup> from 5-10 stones, or 10-15 small stones if gravel was available.
Sediment	First millimetre of permanently submerged sediment within the spring.	10 – 20 cm <sup>3</sup> of the top sediment layer
Bryophytes	Bryophytes either submerged or not permanently submerged at the springs periphery	30 – 40 cm <sup>3</sup> of the bryophytes
Leaf litter	Submerged leaf litter from the ground of the spring. Only old leaves have been sampled.	30 – 40 cm <sup>3</sup> of leaves
Epiphytic, filamentous green algae	Filamentous green algae submerged or not permanently submerged at the spring's periphery.	30 – 40 cm <sup>3</sup> of filamentous green algae