

SUPPLEMENTARY INFORMATION

Table S1. List of plant species. *Lista de especies de plantas.*

D1-Left bank	D1-Right bank	D2-Left bank	D2 - Right bank	D3 - Left bank	D3 - Right bank
Trees					
<i>Salix fragilis</i> (dominant)	<i>Salix fragilis</i> (dominant)	<i>Salix fragilis</i> (dominant)	<i>Salix fragilis</i> (dominant)	<i>Salix fragilis</i>	<i>Salix fragilis</i> (dominant)
<i>Acer campestre</i>	<i>Prunus cerasifera</i>	<i>Prunus avium</i>	<i>Prunus avium</i>	<i>Juglans regia</i>	<i>Prunus cerasifera</i>
<i>Prunus avium</i>		<i>Prunus cerasifera</i>	<i>Prunus cerasifera</i>	<i>Prunus cerasifera</i>	<i>Ulmus minor</i>
<i>Prunus cerasifera</i>		<i>Pyrus pyraster</i>	<i>Pyrus pyraster</i>	<i>Pyrus pyraster</i>	
<i>Ulmus minor</i>		<i>Juglans regia</i>	<i>Juglans regia</i>	<i>Ulmus minor</i>	
Shrubs					
<i>Salix purpurea</i> (dominant)	<i>Salix purpurea</i> (dominant)	<i>Cornus sanguinea</i>	<i>Cornus sanguinea</i>	<i>Clematis vitalba</i>	<i>Clematis vitalba</i>
<i>Clematis vitalba</i>	<i>Clematis vitalba</i>	<i>Crataegus monogyna</i>	<i>Crataegus monogyna</i>	<i>Cornus mas</i>	<i>Cornus sanguinea</i>
<i>Cornus sanguinea</i>	<i>Cornus sanguinea</i>	<i>Prunus spinosa</i>	<i>Prunus spinosa</i>	<i>Cornus sanguinea</i>	<i>Corylus avellana</i>
<i>Corylus avellana</i>	<i>Crataegus monogyna</i>	<i>Rubus caesius</i>	<i>Rubus caesius</i>	<i>Corylus avellana</i>	<i>Crataegus monogyna</i>
<i>Crataegus monogyna</i>	<i>Rubus caesius</i>	<i>Rubus thyrsanthus</i>	<i>Rubus thyrsanthus</i>	<i>Crataegus monogyna</i>	<i>Prunus spinosa</i>
<i>Ligustrum vulgare</i>	<i>Rubus thyrsanthus</i>	<i>Salix purpurea</i>	<i>Salix purpurea</i>	<i>Prunus spinosa</i>	<i>Rosa canina</i>
<i>Prunus spinosa</i>	<i>Rosa canina</i>			<i>Rosa canina</i>	<i>Rubus caesius</i>
<i>Rubus caesius</i>				<i>Rubus caesius</i>	<i>Salix purpurea</i>
<i>Rubus thyrsanthus</i>				<i>Salix purpurea</i>	
<i>Rosa canina</i>					
Helophytes					
<i>Carex riparia</i>	<i>Carex riparia</i>			<i>Carex riparia</i>	<i>Carex riparia</i>
<i>Juncus inflexus</i>	<i>Juncus inflexus</i>			<i>Petasites hybridus</i>	<i>Petasites hybridus</i>
<i>Schoenoplectus lacustris</i>	<i>Schoenoplectus lacustris</i>			<i>Scrophularia umbrosa</i>	<i>Scrophularia umbrosa</i>
<i>Scrophularia umbrosa</i>	<i>Scrophularia umbrosa</i>				

Table S2. Results from physicochemical parameters measured at all sites for every sampling event. Surface water flow was not present at D2 from June 2019 (D2/06/2019), and because of that *in situ* measurements were not conducted and water samples were not collected. *Resultados de parámetros fisicoquímicos medidos en todos los sitios para cada evento de muestreo. El flujo de agua superficial no estuvo presente en D2 desde junio de 2019 (D2/06/2019) y, debido a eso, no se realizaron mediciones in situ ni se recolectaron muestras de agua.*

	T	DO	pH	CD	NH ₃	NO ₃	NO ₂	PO ₄
OV/06/2019	25.5	6.93	8.33	226	0.01	3.15	0.02	0.00
OV/10/2019	17.4	9.80	8.30	229	0.00	10.88	0.06	0.00
OV/06/2020	21.9	8.12	8.29	258	0.08	1.50	0.09	0.20
OV/06/2021	26.3	9.65	8.00	290				
OV/06/2022	25.8	7.90	8.14	248	0.07	2.00	0.02	0.05
OV/11/2022	14.2	10.00	8.12	250	0.22	9.50	0.03	0.01
OV - mean values	21.9	8.73	8.20	250	0.08	5.41	0.04	0.05
D1/06/2019	14.0	5.73	7.84	347	0.49	5.40	0.03	0.26
D1/10/2019	16.5	8.40	8.40	260	0.02	5.56	0.04	0.05
D1/06/2020	13.2	6.68	7.68	431	0.27	3.15	0.87	0.09
D1/06/2021	17.0	2.73	7.23	533				
D1/06/2022	11.4	8.40	7.51	376	0.26	0.90	0.14	0.17
D1/11/2022	12.6	6.10	7.45	322	0.03	6.60	0.02	0.00
D1 - mean values	14.1	6.34	7.69	378	0.214	4.32	0.22	0.11
D2/06/2019								
D2/10/2019	16.3	8.00	7.86	284	0.00	2.40	0.06	0.01
D2/06/2020	17.3	6.05	8.12	421	0.05	2.40	0.09	0.07
D2/06/2021	18.5	7.50	8.12	471				
D2/06/2022	14.4	8.25	7.97	379	0.03	4.90	0.07	0.15
D2/11/2022	13.8	7.70	7.85	296	0.05	5.70	0.03	0.00
D2 - mean values	16.1	7.50	7.98	370	0.033	3.85	0.06	0.06
D3/06/2019	16.0	7.46	7.98	496	0.01	4.70	0.02	0.37
D3/10/2019	15.1	8.70	7.74	290	0.01	5.60	0.02	0.02
D3/06/2020	15.4	7.65	7.98	511	0.01	3.88	0.10	0.10
D3/06/2021	16.1	8.06	7.79	832				
D3/06/2022	14.9	8.10	7.73	510	0.01	6.55	0.30	0.07
D3/11/2022	13.3	7.40	7.46	386	0.04	4.87	0.02	0.06
D3 - mean values	15.1	7.9	7.8	504.2	0.016	5.1	0.1	0.1

Table S3. Contribution of every physicochemical parameter from D1, D2 and D3 to the first 5 principal components. The first 3 variables with the greatest contribution for Dim 1 and Dim 2 are colored in yellow. *Contribución de cada parámetro fisicoquímico de D1, D2 y D3 de los cinco primeros componentes principales. Las 3 primeras variables de mayor contribución para Dim 1 y Dim 2 están coloreadas en amarillo.*

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
T	11.4099792	29.459180874	2.6919463	2.4737453	19.378388
DO	16.5191442	6.433439363	16.1381197	1.3833166	30.587057
pH	22.9447851	4.724575424	16.6882438	0.0602342	1.461808
CD	0.5778574	30.299066605	10.1168643	7.1204900	27.689252
NH ₃	29.0079444	0.333926010	6.8400842	8.5079491	2.214236
NO ₃	2.7370013	2.424679913	35.9388178	17.6680914	6.730697
NO ₂	14.1924330	0.005299305	0.8498763	38.9971029	1.734923
PO ₄	2.6108554	26.319832504	10.7360477	23.7890706	10.203639

Table S4. Statistical significance and correlation coefficients of all physicochemical parameters from D1, D2 and D3 within principal components 1 and 2. *Importancia estadística y coeficientes de correlación de todos los de parámetros fisicoquímicos de D1, D2 y D3 dentro de los principales componentes 1 y 2.*

Dim.1		
	correlation	p.value
pH	0.7260933	6.453620e-04
DO	0.6160901	6.478965e-03
T	0.5120270	2.983165e-02
NO ₂	-0.5710562	1.331178e-02
NH ₃	-0.8164112	3.583183e-05
Dim.2		
	correlation	p.value
CD	0.6918891	0.001466482
T	0.6822322	0.001813722
PO ₄	0.6448570	0.003859414

Table S5. Linear regression models between physicochemical parameters from OV and D1 - Standardized coefficients. *Modelos de regresión lineal entre parámetros fisicoquímicos de OV y D1. - Coeficientes estandarizados.*

Standardized coefficients (NH₃):							
Source	Value	Standard error	t	Pr > t	Lower bound (95%)	Upper bound (95%)	p-values signification codes
D0d	-0.919	0.197	-4.661	0.010	-1.466	-0.372	**
Standardized coefficients (PO₄):							
D0d	-0.880	0.237	-3.709	0.021	-1.539	-0.221	*

*Signification codes: 0 < *** < 0.001 < ** < 0.01 < * < 0.05 < . < 0.1 < ° < 1*

Table S6. Hydraulic parameters and hydrological indices measured and calculated for every sampling event at every sampling site. *Parámetros hidráulicos e índices hidrológicos medidos y calculados para cada evento de muestreo en cada lugar de muestreo.*

	Q m ³ /s	V m ³ .10 ³	Vav m/s	QNERR	QPORR	QCVANN	Q50 m ³ /s	QMEAN m ³ /s
D1/06/2019	0.005	572	0.3	13	11	0.292308	0.021	0.021666
D1/10/2019	0.025	718	0.35	14	12	0.301501	0.022	0.02326
D1/06/2020	0.012	664	0.3	10	6	0.351192	0.021	0.022233
D1/06/2021	0.006	409	0.3	2	2	0.120105	0.014	0.014025
D1/06/2022	0.012	638	0.3	3	3	0.979187	0.017	0.020397
D1/11/2022	0.012	609	0.3	4	4	1.038096	0.017	0.019441
D2/06/2019	0	572	0	13	11	0.292308	0.021	0.021666
D2/10/2019	0.025	718	0.3	14	12	0.301501	0.022	0.02326
D2/06/2020	0.012	664	0.25	10	6	0.351192	0.021	0.022233
D2/06/2021	0.006	409	0.25	2	2	0.120105	0.014	0.014025
D2/06/2022	0.012	638	0.3	3	3	0.979187	0.017	0.020397
D2/11/2022	0.012	609	0.3	4	4	1.038096	0.017	0.019441
D3/06/2019	0.01	572	0.25	13	11	0.292308	0.021	0.021666
D3/10/2019	0.03	718	0.3	14	12	0.301501	0.022	0.02326
D3/06/2020	0.018	664	0.25	10	6	0.351192	0.021	0.022233
D3/06/2021	0.014	409	0.25	2	2	0.120105	0.014	0.014025
D3/06/2022	0.02	638	0.3	3	3	0.979187	0.017	0.020397
D3/11/2022	0.02	609	0.3	4	4	1.038096	0.017	0.019441

Table S7. Contribution of the hydraulic parameter and the hydrological indices to the first 5 principal components. The first 3 variables with the greatest contribution for Dim 1 and Dim 2 are colored in yellow. *Contribución del parámetro hidráulico y de los índices hidrológicos a los primeros 5 componentes principales. Las 3 primeras variables de mayor contribución para Dim 1 y Dim 2 están coloreadas en amarillo.*

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
Q	5.538596e+00	19.2869137	18.9792127	50.5907529	0.9059139
V	1.558921e+01	11.2666396	4.6092505	0.4074551	12.289305
Vav	8.088975e-04	28.4868765	27.7760518	43.5892593	0.1283529
QNERR	1.920210e+01	6.0533653	1.0304949	1.2698601	1.6057859
QPORR	1.789075e+01	5.1083024	1.1207470	0.4350904	51.575869
QCVANN	5.557483e-01	27.5188211	38.6433133	0.1862534	23.029884
Q50	2.142535e+01	0.9042835	0.4443615	1.9513912	5.9954128
QMEAN	1.979744e+01	1.3747979	7.3965681	1.5699378	4.4694770

Table S8. Statistical significance and correlation coefficients of the hydraulic parameter and the hydrological indices within principal components 1 and 2. *Importancia estadística y coeficientes de correlación del parámetro hidráulico y de los índices hidrológicos dentro de los principales componentes 1 y 2.*

Dim.1		
	correlation	p.value
Q50	0.9782594	2.344243e-12
QMEAN	0.9403609	6.668121e-09
QNERR	0.9261141	3.535548e-08
QPORR	0.8939318	5.747801e-07
V	0.8344534	1.663804e-05
Q	0.4973819	3.571126e-02
Dim.2		
	correlation	p.value
Vav	0.7627452	0.0002322394
QCVANN	0.7496732	0.0003409404
Q	0.6276079	0.0052968000
V	0.4796829	0.0439619186

Table S9. Taxonomic distribution at D1, D2 and D3, indicated by year and season. 19s – spring 2019, 19a – autumn 2019, 22s – spring 2022, 22a – autumn 2022. *Distribución taxonómica en D1, D2 y D3, indicada por año y temporada. 19s - primavera de 2019, 19a - otoño de 2019, 22s - primavera de 2022, 22a - otoño de 2022.*

Sampling sites	D1						D2						D3					
	19s	19a	20	21	22s	22a	19s	19a	20	21	22s	22a	19s	19a	20	21	22s	22a
Turbellaria/Dugesiidae/Dugesia sp.		+	+		+	+					+	+		+				
Oligochaeta		+	+	+	+	+		+				+		+	+	+		
Hirudinae/Glossiphoniidae						+		+										
Gastropoda																		
Lymnidae									+									
Physidae										+	+							
Planorbidae	+		+		+					+			+	+		+		
Clausidae										+					+			+
Orculidae										+						+		
Bivalvia																		
Dreissenidae										+								
<i>Sphaerium sp.</i>		+	+	+	+			+	+	+	+	+	+		+			
Malacostraca																		
Asellidae		+			+						+							
<i>Astacus astacus</i>		+			+						+	+						
Gammaridae	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Ephemeroptera																		
Baetidae		+			+			+	+		+	+	+	+	+	+		
Ecdyonurus		+				+			+		+	+	+	+	+	+	+	+
<i>Ephemera sp.</i>				+		+		+	+	+	+	+	+	+	+	+		
Leptophlebiidae								+				+		+				
Trichoptera																		
Goeridae		+				+								+		+		
Hydropsychidae	+	+	+		+	+		+		+	+	+	+	+	+	+		
Leptoceridae								+			+							
Helycoptychidae				+		+		+		+	+	+		+	+	+		
Limnephilidae					+				+	+	+	+	+			+		
Philopotamidae											+		+	+				
Psychomyiidae														+	+			
Rhyacophilidae						+								+				
Sericostomatidae									+						+	+		
Megaloptera/Sialidae	+	+		+		+		+		+		+		+	+	+		

Coleoptera																		
Colymbetinae								+							+	+		+
Elmidae	+	+	+					+	+	+		+	+	+	+	+		
Helodidae						+		+			+	+		+				
Hydrophilidae	+	+	+											+		+		
Odonata																		
Aeshnidae		+				+		+		+	+	+		+		+		
Calopterygidae								+	+	+				+	+	+		
Gomphidae						+												
Diptera																		
Athericidae					+		+	+	+	+	+	+	+	+	+	+		
Ceratopogonidae								+	+									
Chironomidae	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
<i>Chironomus sp.</i>			+	+					+									
Culicidae			+						+									
<i>Dicronota sp.</i>		+															+	
Dixidae					+			+						+	+			
Dolichopodidae					+			+										
Empididae		+	+	+	+			+	+						+			
Limoniidae					+			+						+				
<i>Rheotanytarsus sp.</i>				+				+			+		+	+				
Simuliidae		+	+					+				+	+					
Stratiomyidae		+												+			+	
Tabanidae		+		+					+	+					+			
Tipulidae				+				+	+									
Heteroptera																		
<i>Nepa cinerea</i>											+				+	+		
<i>Ranatra linearis</i>		+						+		+					+	+		
Veliidae				+						+								
Number of taxa registered for all sampling events	38						45						38					

Table S10. Linear regression models between physicochemical parameters and biological indices - Standardized coefficients. *Modelos de regresión lineal entre parámetros fisicoquímicos e índices biológicos.*

Standardized coefficients:							
Source	Value	Standard error	t	Pr > t	Lower bound (95%)	Upper bound (95%)	p-values signification codes
BI							
NH3	-0.938	0.087	-10.80	<0.0001	-1.122	-0.754	***
S							
NH3	-0.771	0.159	-4.838	0.000	-1.108	-0.433	***
BMWP							
NH3	-0.785	0.155	-5.075	0.000	-1.113	-0.457	***
EPT							
NH3	-0.756	0.164	-4.617	0.000	-1.103	-0.409	***
ASPT							
NH3	-0.731	0.171	-4.283	0.001	-1.093	-0.369	***
S							
PO4	-0.627	0.195	-3.220	0.005	-1.040	-0.214	**

*Signification codes: 0 < *** < 0.001 < ** < 0.01 < * < 0.05 < . < 0.1 < ° < 1*

Table S11 Linear regression models between hydrological indices and physicochemical parameters - Standardized coefficients. *Modelos de regresión lineal entre índices hidrológicos y parámetros fisicoquímicos - Coeficientes estandarizados.*

Standardized coefficients (CD):							
Source	Value	Standard error	t	Pr > t	Lower bound (95%)	Upper bound (95%)	p-values signification codes
V	-0.681	0.183	-3.719	0.002	-1.069	-0.293	**
QMEAN	-0.638	0.193	-3.313	0.004	-1.046	-0.230	**

*Signification codes: 0 < *** < 0.001 < ** < 0.01 < * < 0.05 < . < 0.1 < ° < 1*

Figure S1. Combined contribution of all physicochemical parameters from D1, D2 and D3 within the first 2 principal components. *Contribución conjunta de todos los parámetros fisicoquímicos de D1, D2 y D3 dentro de los principales componentes 1 y 2.*

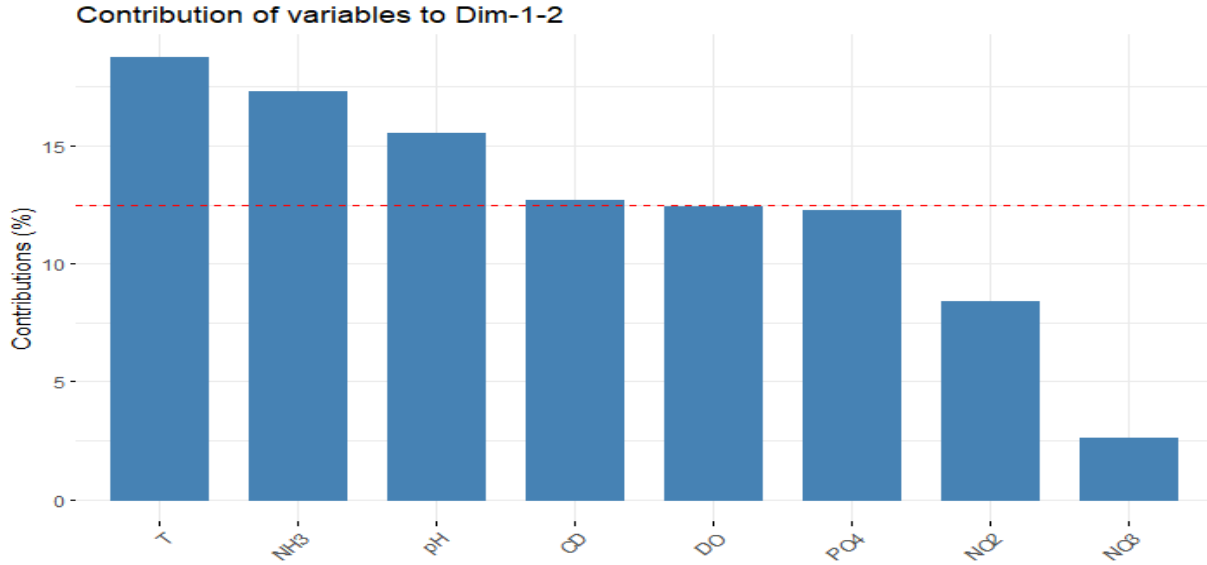


Figure S2. Combined contribution of all hydrological indices from D1, D2 and D3 within the first 2 principal components. *Contribución conjunta de todos los índices hidrológicos de D1, D2 y D3 dentro de los principales componentes 1 y 2.*

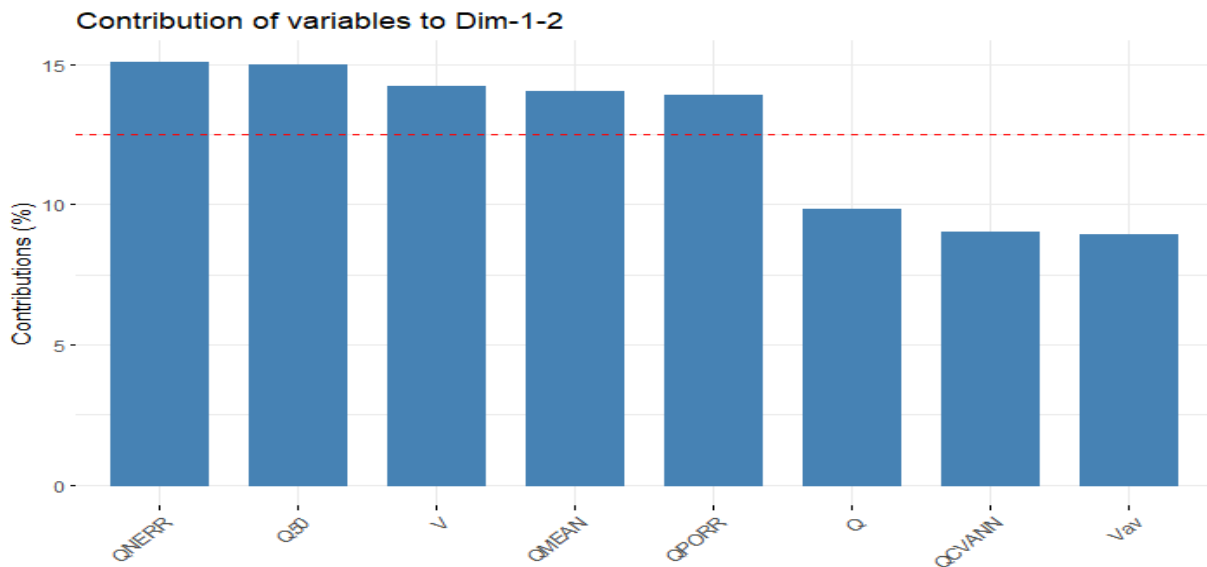


Figure S3. QBR results from the river. *Resultados del QBR desde el rio.*

