Table S1. Main geographic and morphometric characteristics of the studied ponds, along with the number of traps used for each pond.

Pond Name	ID	Latitude (DMS)	Longitude (DMS)	Mean Pond Depth (cm)	Pond Area (m^2)	Conductivity ($mS \cdot cm^{-1}$)	Number of Bottles	Number of Fyke Nets	Number of Gilnets
Bassa del fartet	BF	42°13′39″ N	03°06′18″ E	60.0	2413.0	10.07	36	4	0
La Rubina	RUB	42°15′16″ N	03°08′18″ E	39.0	162.6	12.48	18	2	0
Bassa nova	BN	42°01′51″ N	03°11′33″ E	61.0	1044.0	26.37	50	4	1
Camping out	CO	42°14′00″ N	03°07′07″ E	47.0	1529.0	31.06	38	3	0
Frare Ramon	FR	42°01′44″ N	03°11′28″ E	25.0	10870.0	40.62	80	10	1
Camping nord	CN	42°14′11″ N	03°07′14″ E	110.0	6221.0	40.97	74	6	2
Camping sud	CS	42°14′08″ N	03°07′16″ E	150.0	9970.0	43.03	80	5	2
Túries	TU	42°14′09″ N	03°06′46″ E	29.0	68150.0	45.85	96	12	0
Connectada	CON	42°13′54″ N	03°06′54″ E	23.0	13010.0	53.69	42	4	0
Bassa del Pi	BPI	42°01′42″ N	03°11′18″ E	74.0	147.9	54.53	38	2	0
Bassa de la llúdriga	LLU	42°15′38″ N	03°08′38″ E	38.0	3579.0	59.27	58	6	1
Bassa de l'anguila	AN	42°15′32″ N	03°08′43″ E	44.0	5410.0	66.89	54	6	1
Fangassos	FAN	42°15′51″ N	03°08′23″ E	16.0	445.9	69.10	16	2	0

Table S2. Results of the correlation test among the variables used in GLMs with the relative p-values in the lower table. Log BIOMASSPHYTO.TN is the logarithm of phytoplankton biomass : Total nitrogen. µPHYTO, µZOO and µFISH are respectively the size diversities of phytoplankton, zooplankton and fish. HPHYTO, HZOO and HFISH are respectively the taxonomic diversities of phytoplankton, zooplankton and fish.

N=13	CONDUCTIVITY	logAREA	logDEPTH	logBIOMASS PHYTO.TN	µPHYTO	HPHYTO	µZOO	HZOO	µFISH	HFISH
CONDUCTIVITY		0.18	-0.31	0.25	0.33	0.36	0.32	-0.23	-0.14	-0.15
logAREA			-0.04	-0.29	0.34	0.49	0.44	0.48	0.18	0.23
logDEPTH				0.38	-0.58	-0.75	-0.07	-0.12	-0.05	0.08
logBIOMASS PHYTO.TN					-0.50	-0.49	-0.25	-0.26	0.18	-0.02
µPHYTO						0.89	0.13	0.18	0.00	-0.39
HPHYTO							0.20	0.36	0.01	-0.15
µZOO								0.45	-0.31	0.17
µZOO									0.02	-0.06
µFISH										0.09
HFISH										

P	CONDUCTIVITY	logAREA	logDEPTH	logBIOMASS PHYTO.TN	µPHYTO	HPHYTO	µZOO	HZOO	µFISH	HFISH
CONDUCTIVITY		0.55	0.30	0.42	0.27	0.23	0.28	0.44	0.65	0.62
logAREA			0.89	0.33	0.26	0.09	0.13	0.10	0.57	0.46
logDEPTH				0.20	0.04	0.00	0.82	0.69	0.86	0.79
logBIOMASS PHYTO.TN					0.08	0.09	0.41	0.38	0.56	0.95
µPHYTO						0.00	0.68	0.55	1.00	0.18
HPHYTO							0.51	0.23	0.96	0.62
µZOO								0.12	0.31	0.58
HZOO									0.95	0.85
µFISH										0.78
HFISH										

Table S3. Results of the GLMs (N = 13) showing the predictor variables that affect size diversity and taxonomic diversity of phytoplankton and zooplankton assemblages. Both Full models and Best models are presented. For each one, intercept (estimate and standard error, S.E.), Beta coefficients (standardized), *t*-value, significance (*p*-value) and R square of the model are shown. Phyt.biom.: TN is the ratio of Phytoplankton biomass: Total Nitrogen.

Response Variable	Model	AIC	Predictors	Estimate	S.E.	Beta Coefficients	*t*-Value	*p*-Value	R-Square
Zooplankton									
Size diversity	Full	32.00	Conductivity	<0.01	0.01	0.22	0.73	0.49	0.08
			Log Pond Area	0.43	0.26	0.50	1.66	0.14	
			Fish size diversity	−0.74	0.58	−0.37	−1.28	0.24	
			Phytoplankton size diversity	−0.12	0.32	−0.11	−0.37	0.72	
Species diversity	Full	12.20	Conductivity	<0.01	0.01	−0.15	−0.55	0.60	0.19
			Log Pond Area	0.27	0.14	0.60	1.89	0.09	
			Fish Shannon diversity	<0.01	0.69	<0.01	<0.01	0.99	
			Phytoplankton Shannon diversity	0.11	0.21	0.17	0.52	0.62	
	Best	6.90	Log Pond Area	0.29	0.10	0.65	2.86	0.02	0.42
Phytoplankton									
Size diversity	Full	26.80	Conductivity	0.01	0.01	0.41	1.24	0.25	0.28
			Log Pond Area	0.18	0.23	0.21	0.75	0.48	
			Log Pond Depth	−0.63	0.72	−0.27	−0.88	0.41	
			Zooplankton size diversity	−0.22	0.28	−0.24	−0.79	0.45	
			Phytoplankton biomass: TN	−2.96	2.00	−0.49	−1.48	0.18	
	Best	23.90	Conductivity	0.02	0.01	0.48	2.04	0.06	0.47
			Phytoplankton biomass: TN	−3.71	1.42	−0.62	−2.62	0.02	
Species diversity	Full	14.00	Conductivity	0.01	0.01	0.15	0.86	0.42	0.65
			Log Pond Area	0.21	0.16	0.34	1.31	0.23	
			Log Pond Depth	−1.15	0.44	−0.61	−2.62	0.03	
			Zooplankton Shannon diversity	0.17	0.28	0.06	0.63	0.55	
			Phytoplankton biomass: TN	−1.01	1.14	−0.18	−0.88	0.41	
	Best	9.34	Log Pon Area	0.32	0.11	0.46	2.96	0.01	0.76
			Log Pond Depth	−1.44	0.31	−0.73	−4.73	<0.01	