

Gomes *et al.*, 2021. Effect of environmental filters on Chironomidae (Insecta: Diptera) assemblages of neotropical watersheds. *Limnetica* 40-1, 2021: 19-31

## SUPPLEMENTARY INFORMATION

**Table S1.** Characterization and water volume in the reservoirs Cruzeta, Passagem das Traíras, and Sabugí located in the Piranhas-Assu watershed, and reservoirs Poções, Cordeiro, and Sumé located in the Paraíba watershed, Northeastern Brazil (AESAs, 2015; SEMARH, 2015). (x = data not recorded) *Caracterização e volume hídrico dos reservatórios Cruzeta, Passagem das Traíras e Sabugí localizados na bacia hidrográfica Piranhas-Assu, e reservatórios Poções, Cordeiro e Sumé localizados na bacia hidrográfica do rio Paraíba, Nordeste do Brasil (AESAs, 2015; SEMARH, 2015). (x = dados não gravados)*

Reservoirs	Cruzeta	Passagem das traíras	Sabugí	Poções	Cordeiro	Sumé
<b>Geographic location</b>	06°24'42''S and 36°47'23''W	06°27'16''S and 36°52'29''W	06°43'06''S and 37°12'02''W	7°53'38''S and 37°0'30''W	7°47'38.''S and 36°40'04''W	7°29'8''S and 37°12'20''W
<b>Altitude (m)</b>	231	196	187	596	480	500
<b>Approximate maximum accumulation capacity (10<sup>6</sup>m<sup>3</sup>)</b>	23	49	65	29	69	44
<b>Approximate water volume (10<sup>6</sup>m<sup>3</sup>)</b>	21	x	26	20	13	37
<b>Construction year</b>	1929	1994	1965	1982	x	1953
<b>Presence of submerged macrophytes</b>	No	No	Yes	No	Yes	No
<b>Main finality</b>	Supply and irrigation	Supply and irrigation	Supply	Supply and irrigation	Supply and irrigation	Supply and irrigation
<b>Retention time</b>	x	x	x	5 years	5 years	3 years

**Table S2.** Mean values and standard deviation of the environmental parameters that compose the environmental filters (physical/chemical, habitat composition, and landscape). The variables were measured in the Piranhas-Assu watershed and Paraíba watershed, Northeastern Brazil. Where: LD= Least disturbed sites; SD= Severely disturbed Sites. (\* = variables used to calculate Trophic State Index). *Valores médios e desvio padrão dos parâmetros ambientais que compõem os filtros ambientais (físico e químico, composição do habitat e paisagem). As variáveis foram mensuradas na bacia hidrográfica do rio Piranhas-Assu e na bacia do rio Paraíba, Nordeste do Brasil. Onde: LD = Sites menos perturbados; SD = Sites severamente perturbados. (\* = variáveis utilizadas para calcular o Índice de Estado Trófico).*

Environmental variables	Code	Piranhas-Assu watershed		Paraíba watershed	
		LD	SD	LD	SD
<i>Physical and chemical filter</i>					
Dissolved oxygen (mg/L)	DO	4.07 ± 0.72	6.52 ± 1.92	5.64 ± 0.65	12.35 ± 39.18
Total dissolved solids (g/L)	TDS	0.23 ± 0.004	0.99 ± 1.00	1.15 ± 0.08	0.76 ± 0.32
Total nitrogen (µm/L)	TN	107.76 ± 14.94	160.97 ± 54.87	213.38 ± 39.41	204.47 ± 85.53
Trophic State Index	TSI	48.85 ± 2.40	59.27 ± 9.14	49.08 ± 5.13	58.41 ± 5.60
Transparency (m)*	TRA	0.64 ± 0.16	0.46 ± 0.17	0.66 ± 5.89	0.45 ± 0.12
Total phosphorus (µm/L)*	PT	62.32 ± 10.93	144.91 ± 67.41	45.82 ± 13.09	118.65 ± 37.68
Reactive soluble phosphate (µm/L)*	RSP	7.42 ± 3.14	74.07 ± 56.99	24.58 ± 18.74	39.23 ± 24.92
Chlorophyll- <i>a</i> *	CHL	9.03 ± 3.09	17.71 ± 10.46	5.68 ± 2.70	35.74 ± 28.30
<i>Habitat filter</i>					
Gravel (%)	GRA	19.68 ± 8.85	30.94 ± 27.42	0.88 ± 1.59	18.14 ± 16.25
Coarse sand (%)	COA.S	25.52 ± 10.68	11.11 ± 11.08	4.83 ± 3.68	24.66 ± 8.53
Middle sand (%)	MID.S	18.90 ± 3.76	12.84 ± 9.43	32.20 ± 10.76	19.37 ± 5.80
Fine sand (%)	FIN.S	23.91 ± 9.14	20.55 ± 11.16	25.13 ± 4.36	20.48 ± 6.90
Silt (%)	SIL	9.43 ± 5.33	16.98 ± 11.68	21.02 ± 5.14	11.17 ± 5.83
Mud (%)	MU	2.54 ± 1.51	7.58 ± 5.81	15.95 ± 5.31	6.15 ± 5.10
<i>Landscape filter</i>					
Presence of Residence	RE	0.27 ± 0.46	0.54 ± 0.50	0.05 ± 0.24	0.39 ± 0.49
Pasture area	PAS	0 ± 0	0.16 ± 0.37	0 ± 0	0.32 ± 0.47
Presence of agriculture	AGR	0 ± 0	0.32 ± 0.47	0.11 ± 0.33	0.44 ± 0.50

**Table S3.** Correlation values of the environmental parameters used to Principal Components Analysis (PCA) in the Piranhas-Assu watershed and Paraíba watershed, Northeastern Brazil. *Valores de correlação dos parâmetros ambientais utilizados para Análise de Componentes Principais (ACP), para bacia hidrográfica do rio Piranhas-Assu e bacia hidrográfica do rio Paraíba, Nordeste do Brasil.*

Environmental variables	Piranhas-Assu Watershed		Paraíba Watershed	
	Axis 1	Axis 2	Axis 1	Axis 2
Dissolved oxygen	-0.74	-0.47	0.05	-0.71
Total dissolved solids	-0.76	0.03	-0.76	-0.36
Total nitrogen	-0.76	-0.32	-0.38	-0.72
Trophic State Index	-0.75	-0.42	0.49	-0.59
Gravel	-0.43	0.85	-0.82	-0.35
Coarse sand	-0.52	-0.31	-0.76	0.45
Middle sand	0.07	-0.72	0.73	-0.08
Fine sand	0.44	-0.58	0.72	0.31
Silt	0.80	-0.27	0.85	-0.05
Mud	0.80	-0.13	0.78	-0.13
Presence of Residence	-0.45	0.02	0.13	-0.44
Pasture area	-0.62	0.18	0.13	-0.28
Presence of agriculture	-0.69	-0.08	0.29	-0.38

**Table S4.** List of Chironomidae a collected in the Piranhas-Assu watershed and Paraíba watershed, Northeastern Brazil. Where: LD= Least disturbed sites; SD= Severely disturbed sites. (-absent taxa)  
*Lista Chironomidae coletados na bacia hidrográfica do rio Piranhas-Assu e bacia do rio Paraíba, Nordeste do Brasil. Onde: LD = Sites menos perturbados; SD = Sites severamente perturbados. (- taxa ausente)*

Taxa	Piranhas-Assu Watershed		Paraíba Watershed	
	LD	SD	LD	SD
Chironominae				
<i>Aedokritus</i> (Roback, 1958)	118	28	1	231
<i>Asheum</i> (Sublette, 1964)	994	471	-	15
<i>Cladopelma</i> (Kieffer, 1921)	3	2	-	-
<i>Chironomus</i> (Meigen, 1803)	192	142	1	29
<i>Dicrotendipes</i> (Kieffer, 1913)	50	86	-	-
<i>Fissimentum</i> (Cranston & Nolte, 1996)	30	18	-	7
<i>Goeldichironomus</i> (Fittkau, 1965)	2218	1708	2	114
<i>Parachironomus</i> (Lenz, 1921)	9	10	6	9
<i>Pelomus</i> (Reis, 1989)	141	58	-	11
<i>Polypedilum</i> (Kieffer, 1912)	698	730	-	197
<i>Saetheria</i> (Jackson, 1977)	-	1	-	-
<i>Tanytarsus</i> (Van der Wulp, 1874)	1,306	975	-	39
<i>Zavreliella</i> (Kieffer, 1920)	4	2	-	-
Tanypodinae				
<i>Ablabesmyia</i> (Johannsen, 1905)	9	8	-	2
<i>Coelotanypus</i> (Kieffer, 1913)	20	48	191	46
<i>Clinotanypus</i> (Kieffer, 1913)	3	-	-	-
<i>Denopelopia</i> (Roback & Rutter, 1988)	-	-	-	1
<i>Djalmabatista</i> (Fittkau, 1968)	29	131	2	2
<i>Larsia</i> (Fittkau, 1962)	10	5	1	4
<i>Monopelopia</i> (Fittkau, 1962)	-	-	-	1
<i>Parapentaneura</i> (Fittkau & Serrano, 2006)	-	-	1	-
<i>Tanypus</i> (Meigen, 1803)	37	6	-	1