

SUPPLEMENTARY INFORMATION

Table S1. Ecological and functional macroinvertebrate groups. *Grupos de Macroinvertebrados de acordo com as suas características ecológicas e fisiológicas*

Type of functional group	Group	Definition
Respiratory groups	Aerial	Organisms that live on the water surface and that can use the atmospheric oxygen to breath
	Aerial and Branchial	Organisms that have gills and can use the atmospheric oxygen to breath
	Branchial	Organisms that live submerged and have gills to breath
	Branchial and cutaneous	Organisms that live submerged and have gills to breath or have cutaneous respiration
	Cutaneous	Organisms that live submerged and had cutaneous respiration
	Pulmonar	Organisms that have a richly vascularized paleal cavity in the mantle that function as a “lung”
	Special	Organisms that have special adaptations to live in water with a very low oxygen concentration
Feeding groups	Shredders	Chewing of detritus and macrophytes, mining of macrophytes and gougers of wood
	Collectors	Suspension feeding, deposit feeding
	Scrappers	Grazing/scraping of mineral and organic surfaces
	Predators	Engulfing, piercing
	Limnivororous	Substrate feeders
Habitat/locomotion groups	Skaters	Adapted for life on the water surface where they feed on organisms trapped in the surface film, low-order streams or margins of high-order rivers
	Planktonics	Inhabiting open water, slow-flow or still, in high-order rivers
	Swimmers	Insects adapted for swimming, semi-aquatic organisms
	Clingers	Possess behavioral or morphological adaptations for attachment to substrate surfaces, or that are sessile or colonial
	Sprawlers	Inhabiting the surface of floating leaves of vascular plants or fine sediments in depositional habitats with adaptations for staying on the substrate
	Climbers	Living and moving on vascular plants or detrital debris
	Burrowers	Inhabiting fine sediments, some constructing discrete burrows, or ingesting their way through sediments
Preference for water velocity	Limnophiles	Inhabiting waters with velocity under 0.3 m/s
	Most limnophiles	Preference for waters with velocity under 0.3 m/s
	Reophiles	Inhabiting waters with velocity upper 0.3 m/s
	Most reophiles	Preference for waters with velocity upper 0.3 m/s

Table S2. Values of correlations between the environmental variables, the macroinvertebrate community metrics and the two first axis of the principal component analysis (Fig. 4 and 6); at bold coefficient of correlations higher than 0.75. *Valores de correlación entre las variables ambientales, las métricas de la comunidad de macroinvertebrados y los dos primeros ejes del análisis de componentes principales; En negrita los coeficientes de correlación mayores de 0.75.*

		Factor 1 (37.51%)	Factor 2 (24.64%)
Environmental Parameters	Flow	0.664	-0.559
	AVH	0.469	0.601
	QBR	0.906	-0.047
	% macrophytes	-0.273	0.221
	Canopy	0.797	-0.394
	pH	-0.460	-0.804
	Conductivity	0.771	0.219
	% O2	0.050	-0.630
		Factor 1 (48.92%)	Factor 2 (21.05%)
Metrics - Macroinvertebrate communities	Number of taxa	-0.802	-0.535
	Abundance	0.419	0.210
	IBMWP	-0.805	-0.519
	Diversity	-0.803	-0.252
	Equitability	-0.288	0.232
	RQE	-0.826	-0.434
	EPT	-0.954	0.084
	Diptera	0.386	-0.722
	% scrappers and shredders	0.575	-0.577
	% colletors	-0.769	0.553
	% clingers	-0.623	-0.529
	% reophiles (R)	-0.829	0.409
% branchial e cutaneous	-0.653	0.464	