Molinero *et al.*, 2019. The Teaone River: a snapshot of a tropical river from the coastal region of Ecuador. *Limnetica* 38(2), 587-605 (2019)

SUPPLEMENTARY INFORMATION

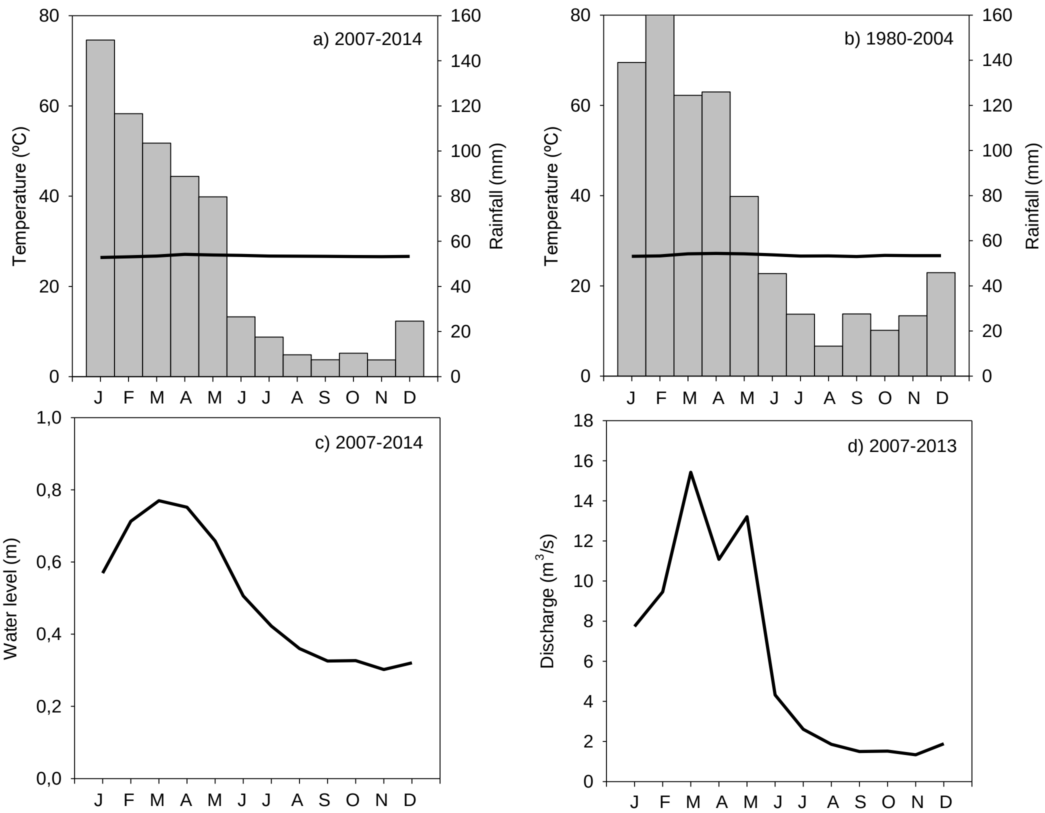

Figure S1. (a) Ombroclimatic diagram for Esmeraldas. (b) Ombroclimatic diagram for Esmeraldas, data from Coronel Carlos Concha Torres airport at Tachina. (c) Monthly mean water level (m) of the Teaone River at Tabiazo. (d) Monthly mean discharge (m^3/s) of the Teaone River at Esmeraldas. Data provided by Instituto Nacional Oceanográfico de la Marina (INOCAR) and Instituto Nacional de Meteorología e Hidrología (INAMHI). *(a) Diagrama ombroclimático de Esmeraldas. (b) Diagrama ombroclimático de Esmeraldas, datos del aeropuerto Coronel Carlos Concha Torres en Tachina. (c) Nivel medio mensual (m) del río Teaone en Tabiazo. (d) Caudal medio mensual (m^3/s) del río Teaone en*

Esmeraldas. Datos proporcionados por el Instituto Nacional Oceanográfico de la Marina (INOCAR) y el Instituto Nacional de Meteorología (INAMHI).

Annual precipitation at Esmeraldas averages 641 mm and displays a strong seasonality (S1a, b). Annual precipitation within the Mache-Chindul mountain range has been reported as much as 3000 mm at Bilsa Biological Station, but water trapping by the vegetation could be as important as annual precipitation (MAE, 2005). It is likely that a precipitation gradient exists along the watershed and the headwaters of the Teaone river may receive annually as much vertical and horizontal rain as 3000-6000 mm. On the contrary, rainfall seasonality over the study area is well represented by the rainfall data at Esmeraldas as shown by the water levels and discharge of the Teaone river (S1c, d).

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MAE. 2005. Plan de manejo y gestión participativa de la reserva ecológica Mache-Chindul. Ministerio del Ambiente de Ecuador, Quito, 168 p.

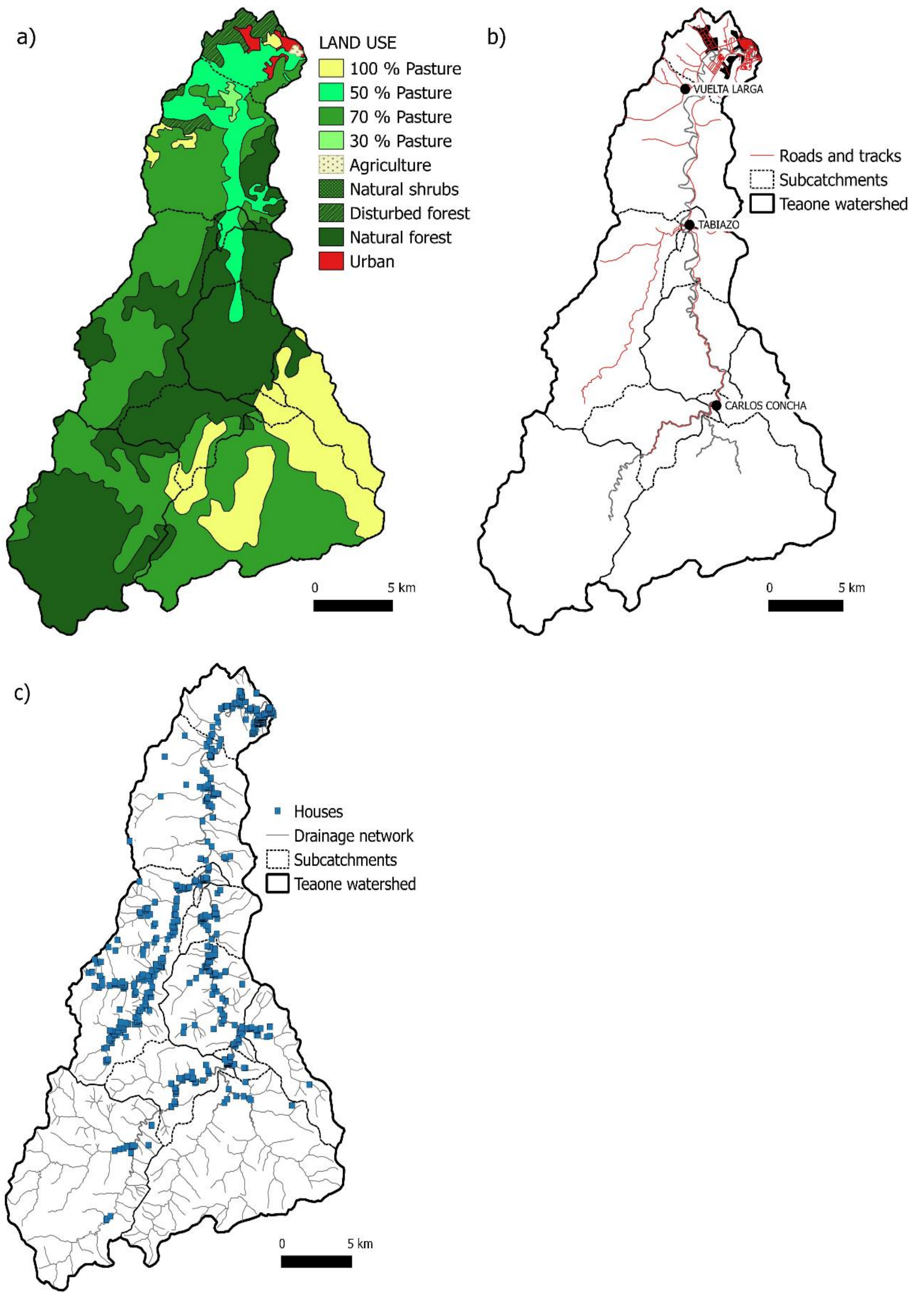

Figure S2. (a) Map of land use within the Teaone watershed (MAGAP, 2005). (b) Map of road density within the Teaone watershed, location of town centers is also shown (IGM, 2015). (c) Map of housing distribution within the Teaone watershed (IGM, 2015). *(a) Mapa de usos del suelo en la cuenca del río Teaone (MAGAP, 2005). (b) Mapa de densidad de la* *red viaria en la cuenca del río Teaone, también se muestra la localización de los pueblos (IGM, 2015). (c) Mapa de la distribución de viviendas en la cuenca del río Teaone (IGM, 2015).*

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IGM. 2015. Cartografía general del Ecuador a escala 1:50000. Instituto Geográfico Militar, Quito.

MAGAP. 2005. Mapa de usos y cobertura de la tierra a escala 1:250000. Ministerio de Agricultura y Ganadería, Quito.

Table S1. Correlations between water physicochemistry and watershed land uses. Sites in the main channel (P1-P7) and in the tributaries (A1-A3) included in the correlations (n = 10). Significant correlations (*p* > 0.05) are highlighted in bold (COND, conductivity in µS/cm; OXYG, oxygen concentration in mg/l; SAT, percentage of saturation of oxygen; TURB, turbidity in FAU; NATE, nitrate in mg/l; NITE, nitrite in µg/l; PATE, orthophosphate in mg/l; AREA, drainage area in km^2; P100, percentage of 100 % pasture in the watershed; P70, percentage of 70 % pasture in the watershed; P50, percentage of 50 % pasture in the watershed; FORE, percentage of natural forest in the watershed; ROAD, road density in km/km^2; HOUS, house density in n/km^2). *Correlaciones entre la fisicoquímica del agua y los usos del suelo en la Cuenca. En las correlaciones se han incluido las estaciones del cauce principal (P1-P7) y las de los tributarios (A1-A3). Las correlaciones significativas (*p *> 0.05) se destacan en negrita (COND, conductividad en µS/cm; OXYG, concentración de oxígeno en mg/l; SAT, porcentaje de saturación de oxígeno; TURB, turbidez en FAU; NATE, nitrato en mg/l; NITE, nitrito en µg/l; PATE, ortofosfato en mg/l; AREA, área de drenaje en km^2; P100, porcentaje de 100 % pasto en la cuenca; P70, porcentaje de 70 % pasto en la cuenca; P50, porcentaje de 50 % pasto en la cuenca; FORE, porcentaje de bosque natural en la cuenca; ROAD densidad de carreteras km/km^2; HOUS, densidad de viviendas en n/km^{-2}).*

	COND	PH	OXYG	SAT	TURB	NATE	NITE	AREA	P100	P070	P050	FOR	ROAD	HOUS
COND								-0.10	-0.40	0.15	0.51	0.04	**0.91**	**0.95**
PH	**0.91**							-0.19	-0.15	0.08	0.28	-0.08	**0.81**	**0.91**
OXYG	0.41	0.42						0.18	-0.21	-0.04	-0.05	0.35	0.49	0.52
SAT	0.54	0.47	0.41					0.46	-0.42	0.28	0.56	0.00	0.61	0.43
TURB	0.04	0.15	-0.16	0.43				0.26	0.38	0.37	0.18	**-0.75**	0.08	-0.01
NATE	-0.31	-0.12	-0.29	-0.34	0.47			-0.45	**0.92**	-0.18	-0.46	**-0.80**	-0.48	-0.28
NITE	-0.18	-0.02	-0.12	-0.12	**0.70**	**0.85**		-0.07	**0.79**	0.25	-0.43	**-0.70**	-0.25	-0.13
PATE	0.45	0.41	0.18	0.14	-0.25	-0.21	-0.36	0.05	-0.10	0.04	0.06	0.08	0.56	0.55

Table S2. Results of the one-way ANOVAS (Site) for the abundance of diatoms. Multiple comparisons were performed with the Tukey's HSD test. There are no significant differences between sites with the same superscript. *Resultados de la ANOVA de una vía (Estación) para la abundancia de diatomeas. Las comparaciones múltiples se realizaron con el test HSD de Tukey. No hay diferencias significativas entre las estaciones con el mismo superíndice.*

	F value		Multiple comparisons
Navicula	$F_{6,14} = 32.0$	$p < 0.001$	$P1^{a}$ $P4^{a}$ $P5^{a}$ $P3^{a}$ $P2^{a}$ < P6 < P7
Synedra	$F_{6,14} = 3.0$	$p < 0.05$	$P7^{a}$ $P1^{a,b}$ $P5^{a,b}$ $P6^{a,b}$ $P2^{a,b}$ $P4^{a,b}$ $P3^{b}$
Aulacoseira	$F_{3,8} = 77.4$	$p < 0.01$	P4 < $P3^{a}$ $P2^{a}$ $P1^{a}$
Rhoicosphenia	$F_{3,8} = 2.2$	n. s.	---
Gomphonema	$F_{6,14} = 1.5$	n. s.	---
Amphora	$F_{6,14} = 1.8$	n. s.	---
Encyonema	$F_{6,14} = 2.7$	n. s.	---
Cymbella	$F_{6,14} = 1.5$	n. s.	---
Placoneis	$F_{6,14} = 2.1$	n. s.	---
Pleurosigma	$F_{6,14} = 10.6$	$p < 0.001$	$P5^{a}$ $P7^{a}$ $P6^{a,b}$ $P4^{a,b}$ $P3^{b,c}$ $P2^{b,c}$ $P1^{c}$
Gyrosigma	$F_{3,8} = 15.2$	$p < 0.01$	$P3^{a}$ $P4^{a,b}$ $P2^{b}$ $P1^{b}$
Fragilaria	$F_{5,12} = 1.1$	n. s.	---
Gomphospenia	$F_{4,10} =6.9$	$p < 0.01$	$P6^{a}$ $P1^{a,b}$ $P4^{a,b}$ $P2^{b}$ $P3^{b}$
Meridion	$F_{5,12} = 0.4$	n. s.	---
Epithemia	$F_{1,4} = 0.2$	n. s.	---
Lemnicola	$F_{1,4} = 0.5$	n. s.	---
Diatoma	$F_{6,14} = 14.6$	$p < 0.001$	$P7^{a}$ $P3^{a,b}$ $P6^{a,b}$ $P5^{b,c}$ $P4^{b,c}$ $P2^{c}$ $P1^{c}$
Eunotia	$F_{6,14} = 4.6$	$p < 0.01$	$P6^{a}$ $P7^{a}$ $P5^{a,b}$ $P3^{a,b}$ $P4^{a,b}$ $P2^{a,b}$ $P1^{b}$
Pinularia	$F_{6,14} = 1.4$	n. s.	---
Melosira	$F_{5,12} = 0.4$	n. s.	---
Cyclotella	$F_{1,4} = 3.6$	n. s.	---
Coconeis	$F_{1,4} = 4.5$	n. s.	---
Rhopalodia	$F_{5,12} = 4.4$	$p < 0.05$	$P6^{a}$ $P5^{a}$ $P4^{a}$ $P3^{a,b}$ $P2^{a,b}$ $P1^{b}$
Nitzchia	$F_{6,14} = 4.6$	$p < 0.01$	$P7^{a}$ $P2^{a}$ $P4^{a,b}$ $P1^{a,b}$ $P5^{a,b}$ $P6^{a,b}$ $P3^{b}$
Caloneis	$F_{6,14} = 5.4$	$p < 0.01$	$P4^{a}$ $P7^{a,b}$ $P5^{a,b}$ $P3^{a,b}$ $P6^{b}$ $P1^{b}$ $P2^{b}$
TOTAL	$F_{6,14} = 2.8$	$p < 0.05$	$P4^{a}$ $P5^{a,b}$ $P3^{a,b}$ $P2^{a,b}$ $P6^{a,b}$ $P1^{a,b}$ $P7^{b}$

Table S3. Taxonomy of the diatom genera found in this study. *Taxonomía de los géneros de diatomeas encontrados en este estudio.*

Class	Order	Family	Genus
Bacillariophyceae	Eunotiales	Eunotiaceae	*Eunotia* Ehrenberg, 1837
		Pinnulariaceae	*Pinnularia* Ehrenberg, 1843
	Naviculales	Pleurosigmataceae	*Pleurosigma* W. Smith, 1852
		Naviculaceae	*Gyrosigma* Hassall, 1845
			Caloneis Cleve, 1894
			Navicula Bory, 1822
	Bacillariales	Bacillariaceae	*Nitzschia* Hassall, 1845
	Thalassiophysales	Catenulaceae	*Amphora* (Ehrenberg) Kützing, 1844
	Cocconeidales	Cocconeidaceae	*Cocconeis* Ehrenberg, 1836
		Achnanthidiaceae	*Lemnicola* Round and Basson, 1997
	Cymbellales	Rhoicospheniaceae	*Rhoicosphenia* Grunow, 1860
			Gomphosphenia Lange-Bertalot, 1995
		Gomphonemataceae	*Gomphonema* Ehrenberg, 1832
			Placoneis C. Mereschkowsky, 1903
		Cymbellaceae	*Cymbella* Agardh, 1830
			Encyonema Kützing, 1833
	Rhopalodiaceae	Rhopalodiaceae	*Epithemia* Kützing, 1844
			Rhopalodia O. Müller, 1895
Fragilariophyceae	Licmophorales	Ulnariaceae	*Synedra* Ehrenberg, 1830
	Tabellariales	Tabellariaceae	*Diatoma* Bory, 1824
			Meridion Agardh, 1824
	Fragilariales	Fragilariaceae	*Fragilaria* Lyngbye, 1819
Coscinodiscophyceae	Melosirales	Melosiraceae	*Melosira* Agardh, 1824
	Aulacoseirales	Aulacoseiraceae	*Aulacoseira* Thwaites, 1848
Mediophyceae	Thalassiosirales	Stephanodiscaceae	*Cyclotella* (Kützing) Brébisson, 1838

Table S4. Taxonomy and functional classification of the macroinvertebrate families found in this study. *Taxonomía y clasificación funcional de las familias de macroinvertebrados encontradas en este estudio.*

Class	Order	Family	Functional feeding group[a]
Insecta	Ephemeroptera	Leptophlebiidae	Gathering collector
		Leptohyphidae	Gathering collector
		Baetidae	Gathering collector
	Trichoptera	Hydropsychidae	Filtering collector
		Leptoceridae	Filtering collector
		Polycentropodidae	Filtering collector
		Philopotamidae	Filtering collector
	Odonata	Coenagrionidae	Predator
		Libellulidae	Predator
		Aeshnidae	Predator
		Gomphidae	Predator
	Coleoptera	Psephenidae	Scraper
		Elmidae	Gathering collector
		Hydrophilidae	Predator
		Ptilodactylidae	Shredder
	Heteroptera	Naucoridae	Predator
		Corixidae	Predator
	Megalóptera	Corydalidae	Predator
	Lepidóptera	Pyralidae	Scraper
	Diptera	Chironomidae	Gathering collector
		Ceratopogonidae	Predator
		Tipulidae	Predator
		Limoniidae	Shredder
		Psychodiidae	Gathering collector
Bivalvia	Veneroida	Corbiculidae	Filtering collector
Gastropoda	Basommatophora	Thiaridae	Scraper
Malacostraca	Decapoca	Palaemonidae	Shredder

[a]after Cummins et al. (2005) and Ramirez & Gutierrez-Fonseca (2014)

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