							mean ± sem values								
							TukeyHDS			NATURAL		URBAN		AGRICULTURAL	
BIOLOGICAL METRICS REPRESENTATIVE OF LAND USE	ML/MML	TRNS	R2c	R2m	R2ad	p-values	N	U	A	mean	± sem	mean	± sem	mean	± sem
CATEGORY I "TAXONOMIC RICHNESS "															
Richness	LMM	ST	0.7	0.94		<0.001	a	b	b	35.17	1.05	15.83	2.07	11.14	1.23
Rarified Richness	LMM	ST	0.77	0.95		<0.001	a	b	b	33.45	1.08	13.49	1.69	9.39	1.07
Richness OCH (Odonata + Coleoptera + Heteroptera)	LMM	ST	0.66	0.89		<0.001	a	b	b	12.33	0.84	5.67	0.80	3.00	0.53
Richness EPT (Ephemeroptera + Plecoptera + Trichoptera)	LMM	SQRT	0.54	0.93		<0.001	a	b	b	9.67	0.61	2.00	0.55	1.29	0.40
Richness EPT / (richness EPT + richness OCH)	LMM	ST	0.25	0.9		0.090	a	a	a	0.44	0.03	0.20	0.04	0.19	0.05
Richness Ephemeroptera	LMM	SQRT	0.6	0.95		0.001	a	b	b	4.33	0.49	0.42	0.34	0.36	0.25
Richness Trichoptera	LMM	SQRT	0.45	0.91		0.001	a	b	b	5.33	0.42	1.58	0.31	0.93	0.25
Richness Odonata	LMM	ST	0.27	0.65		0.045	a	ab	b	5.00	0.63	3.33	0.43	2.29	0.44
Richness Coleoptera	LMM	SQRT	0.52	0.82		0.002	a	a	b	5.00	0.97	1.92	0.38	0.50	0.25
Richness Diptera	LMM	SQRT	0.62	0.87		<0.001	a	b	b	7.17	0.48	3.33	0.48	2.21	0.15
Richness Diptera wihout Chironomidae	LMM	SQRT	0.48	0.86		<0.001	a	b	b	6.17	0.48	2.42	0.48	1.21	0.15
Richness Gasteropoda	LMM	SQRT	0.1	0.66		0.350	a	a	a	1.00	0.37	1.33	0.36	0.43	0.17
Richness Non-insect taxa (Amphipoda + Copepoda + Ostracoda + Gateropoda + Oligochaeta + Hirudinea)	LMM	SQRT	0.001	0.53		0.980	a	a	a	4.17	0.40	4.25	0.57	4.29	0.40
CATEGORY III "RICHNESS COMPOSITION"							N	U	A	MEAN	SEM	MEAN	SEM	MEAN	SEM
% OCH (Odonata + Coleoptera + Heteroptera)	LM	SQRT			0.41	<0.001	a	a	b	0.08	0.02	0.05	0.02	0.01	0.00
% EPT (Ephemeroptera + Plecoptera + Trichoptera)	LM	SQRT			0.64	<0.001	a	b	c	0.27	0.02	0.08	0.03	0.03	0.02
% EPT / (% EPT + % OCH)	LMM	ST	0.16	0.75		0.219	a	a	a	0.78	0.03	0.44	0.11	0.35	0.11
% Ephemeroptera	LM	SQRT			0.56	0.000	a	b	b	0.16	0.04	0.02	0.02	0.01	0.00
% Trichoptera	LMM	SQRT	0.28	0.87		0.640	a	ab	b	0.11	0.02	0.05	0.02	0.02	0.01
% Odonata	LM	SQRT			0.36	<0.001	a	a	b	0.03	0.00	0.02	0.01	0.00	0.00
% Coleoptera	LM	SQRT			0.37	<0.001	a	a	b	0.04	0.01	0.04	0.02	0.00	0.00
% Diptera	LM	SQRT			0.11	0.060	a	a	a	0.31	0.03	0.44	0.07	0.55	0.05
% Diptera wihout Chironomidae	LM	ST			0.17	0.025	a	b	b	0.09	0.03	0.02	0.01	0.03	0.01
% Gasteropoda	LM	SQRT			0.16	0.027	a	ab	b	0.04	0.03	0.01	0.01	0.00	0.00
% Non-insect taxa (Amphipoda + Copepoda + Ostracoda + Gateropoda + Oligochaeta + Hirudinea)	LM	ST			-0.024	0.540	a	a	a	0.33	0.03	0.43	0.06	0.41	0.05
% Baetidae / % EPT	LMM	ST	0.51	0.84		0.001	a	b	b	0.31	0.09	0.02	0.01	0.03	0.02
% Baetidae / % Ephemeroptera	LMM	ST	0.31	0.77		0.037	a	b	b	0.65	0.13	0.09	0.08	0.12	0.08
% Hydropsychidae / % EPT	LMM	SQRT	0.056	0.36		0.690	a	a	a	0.19	0.11	0.37	0.12	0.39	0.11
% Hydropsychidae / % Ephemeroptera	LMM	SQRT	0.69	0.007		0.993	a	a	a	0.40	0.11	0.40	0.11	0.42	0.12
% Chironomidae	LM	ST			0.19	0.016	a	b	b	0.22	0.03	0.42	0.08	0.53	0.04
% Oligochaeta	LM	SQRT			0.05	0.170	a	a	a	0.05	0.02	0.14	0.05	0.21	0.06
% Chironomidae + % Oligochaeta	LM	ST			0.34	0.001	a	b	b	0.27	0.02	0.55	0.09	0.73	0.05
CATEGORY I "DIVERSITY INDEXES"							N	U	A	MEAN	SEM	MEAN	SEM	MEAN	SEM
Shannon's Diversity using base e	LM	ST			0.66	<0.001	a	b	b	2.52	0.09	1.29	0.15	1.01	0.07
Simpson's Diversity	LM	SQRT			0.53	<0.001	b	a	a	0.13	0.02	0.41	0.06	0.47	0.03
Pielou's Evenness	LM	ST			0.46	<0.001	a	b	b	0.71	0.03	0.47	0.04	0.44	0.02
CATEGORY IV "FUNCTIONAL FEEDING GROUPS"							N	U	A	MEAN	SEM	MEAN	SEM	MEAN	SEM
Richness Collectors-Gatherers	LM	SQRT			0.8	<0.001	a	b	c	10.00	0.26	4.50	0.47	4.43	0.31
% Collectors-Gatherers	LM	SQRT			0.42	<0.001	a	b	b	0.68	0.04	0.86	0.04	0.93	0.02
Richness Predators	LMM	ST	0.57	0.85		<0.001	a	b	b	12.67	0.92	6.33	0.87	4.00	0.64
% Predators	LM	SQRT			0.24	0.006	a	ab	b	0.09	0.02	0.07	0.03	0.02	0.01
Richness Herbivores	LMM	ST	0.59	0.88		0.001	a	b	b	8.83	0.40	3.50	0.69	1.50	0.60
% Herbivores	LM	SQRT			0.64	<0.001	a	b	c	0.15	0.04	0.03	0.01	0.00	0.00
Richness Collectors-Filterers	LMM	SQRT	0.18	0.83		0.180	a	a	a	2.83	0.31	1.25	0.37	1.21	0.24
% Collectors-Filterers	LM	SQRT			0.31	0.002	a	b	c	0.07	0.03	0.04	0.02	0.04	0.02

Codes	
Linear Mixed Model	LMM
Linear Model	LM
Transformation	TRNS
Witout transformation	ST
Square Root Transformation	SQRT
Coefficient of determination conditional for Linear Mixed Model	R2c
Coefficient of determination marginal for Linear Mixed Model	R2m
Coefficient of determination adjusted for Linear model	R2ad

SUPPLEMENTARY MATERIAL-B
TABLE S1- Metrics data

SUPPLEMENTARY MATERIAL-B

TABLE S2 Discarded metrics

```
% EPT
Call:
lm(formula = EPTsq ~ impact + distance, data = dat)

Residuals:
     Min       1Q   Median       3Q      Max
-0.27465 -0.04805  0.00093  0.04183  0.32565

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.5149693  0.0524569   9.817 1.44e-10 ***
impactB     -0.4112627  0.0701392  -5.864 2.64e-06 ***
impactC     -0.7565623  0.1110580  -6.812 2.12e-07 ***
distance     0.0032376  0.0009033   3.584  0.00127 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1284 on 28 degrees of freedom
Multiple R-squared:  0.6801,   Adjusted R-squared:  0.6458
F-statistic: 19.84 on 3 and 28 DF,  p-value: 4.268e-07
```

```
Collector-Filterers %
Lm (formula = CFXsq ~ impact + distance, data = dat)

Residuals:
     Min       1Q   Median       3Q      Max
-0.21572 -0.05795 -0.01728  0.02553  0.26906

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.2323180  0.0523485   4.438 0.000129 ***
impactB     -0.2023677  0.0699943  -2.891 0.007339 **
impactC     -0.4650233  0.1108285  -4.196 0.000248 ***
distance     0.0035183  0.0009015   3.903 0.000545 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1282 on 28 degrees of freedom
Multiple R-squared:  0.3958,   Adjusted R-squared:  0.3311
F-statistic: 6.114 on 3 and 28 DF,  p-value: 0.002471
```

```
Collector-gatherers richnnes
Call:
lm(formula = CGR ~ impact * time + distance, data = dat)

Residuals:
    Min      1Q  Median      3Q     Max
-2.5920 -0.3676 -0.0525  0.4470  3.1686

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  10.969912   1.432033   7.660 5.13e-08 ***
impactB      -5.575059   1.770632  -3.149  0.00421 **
impactC     -10.583983   1.885806  -5.612 7.71e-06 ***
time         -0.666667   0.905661  -0.736  0.46851
distance      0.018422   0.007801   2.361  0.02631 *
impactB:time -0.333333   1.109204  -0.301  0.76627
impactC:time  2.095238   1.082472   1.936  0.06430 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.109 on 25 degrees of freedom
Multiple R-squared:  0.8447,   Adjusted R-squared:  0.8074
F-statistic: 22.66 on 6 and 25 DF,  p-value: 5.586e-09
```