

Supplementary Materials for
**Deforestation-driven food-web collapse linked to emerging tropical
infectious disease, *Mycobacterium ulcerans***

Aaron L. Morris, Jean-François Guégan, Demetra Andreou, Laurent Marsollier, Kevin Carolan,
Marie Le Croller, Daniel Sanhueza, Rodolphe E. Gozlan

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Supplementary Materials

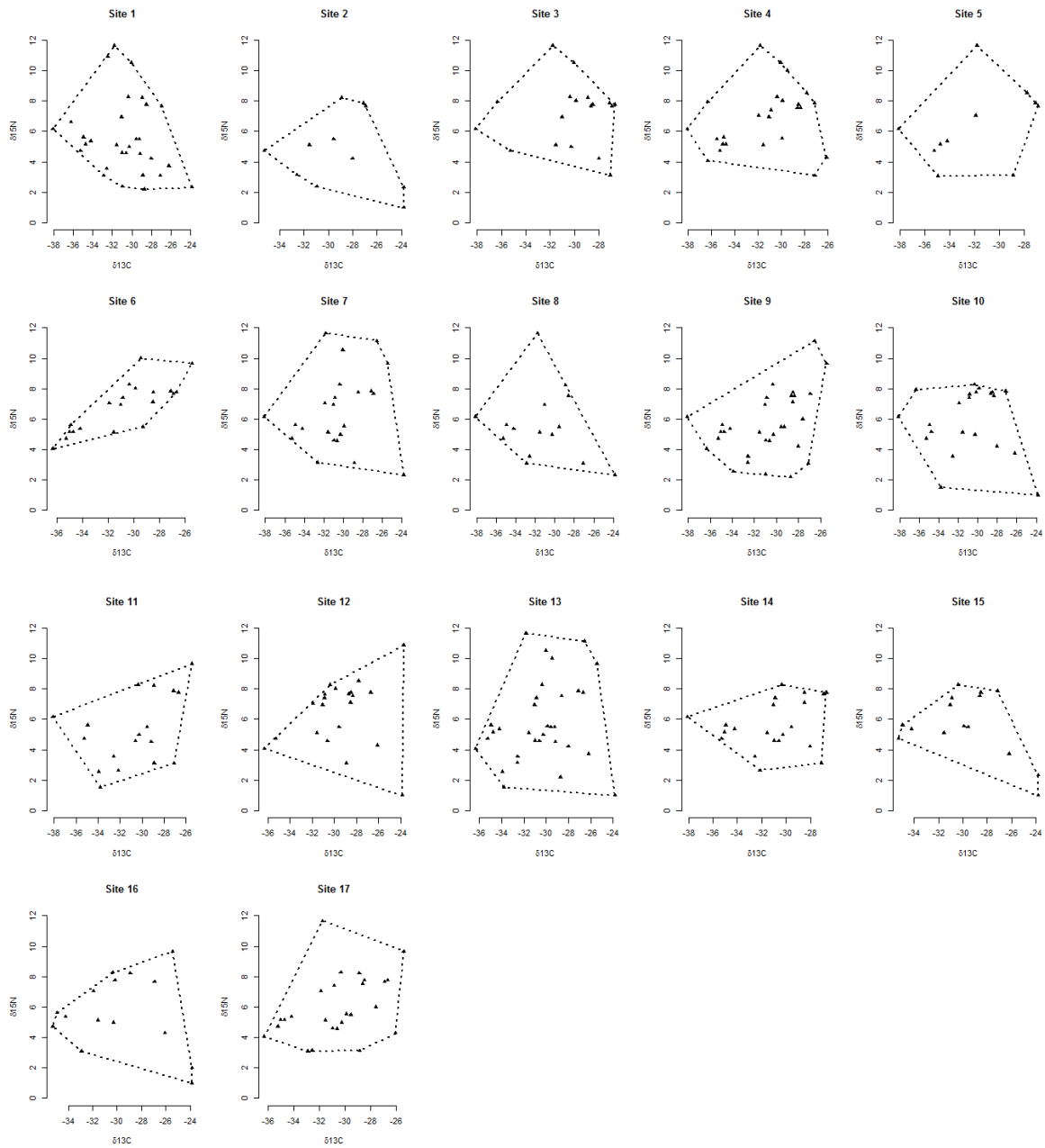


fig. S1. The average $\delta^{15}\text{N}$ and a low $\delta^{13}\text{C}$ in biplot space for each taxonomic group at each of the 17 sites. The dashed line represents the convex hull around the extent of the occupied niche space, niche width is calculated as the volume within this area.

table S1. The mean regional food-web, stable isotope, and qPCR metrics for all taxa. All

columns refer to the average metric (mean) for a taxon across all sites, if Bacillus per mg = 0

this is due to there being no sample of this taxa testing positive.

Taxa	Number analysed	$\delta^{13}C$	$\delta^{15}N$	Bacillus per mg	Niche Width	Vulnerability	Generality
<i>Aequidens tetramerus</i>	1	-29.45	10	0.00	95.84	15.59	21.44
Aeshnidae	5	-31.55	5.12	12.29	57.44	14.88	7.93
Ampullariidae	2	-23.83	1.99	0.00	59.13	7.00	8.00
Ancylidae	49	-32.6	3.15	89.22	75.89	12.70	16.28
Anura	11	-29.91	5.53	31.90	72.07	11.53	15.36
Araneae	21	-26.92	7.65	16.63	58.48	10.53	11.76
Argulidae	1	-23.73	10.86	0.00	67.97	13.40	9.57
Baetidae	16	-35.05	5.15	736.39	53.33	10.50	14.31
Belostomatidae	53	-29.57	5.48	30.44	63.03	10.91	14.02
Caenidae	78	-34.75	5.15	549.97	67.56	13.59	17.69
Ceratopogonidae	93	-32.57	3.56	77.42	77.38	12.22	16.33
Cichlidae sp.	1	-29.45	10	0.00	95.84	15.59	21.44
Chironomidae	1402	-35.27	4.73	183.17	62.68	11.60	14.11
<i>Cleithracara maronii</i>	1	-29.45	10	0.00	27.28	11.91	10.92
Coenagrionidae	33	-31.80	11.65	554.97	69.53	12.92	13.56
<i>Copella carsevensis</i>	26	-27.12	7.85	287.74	56.03	9.38	11.75
Copepoda	17	-32.10	3.28	0.00	61.80	7.85	9.36
Corduliidae	1	-32.48	10.91	0.00	73.97	13.57	20.36
Corixidae	56	-34.21	5.37	349.14	58.65	11.74	14.51
<i>Crenicichla saxatilis</i>	2	-27.61	6	0.00	65.46	13.90	17.38
Culicidae (larvae)	42	-30.99	4.59	121.96	69.78	13.49	17.96
<i>Curimatopsis crypticus</i>	15	-30.84	7.64	0.00	70.64	11.36	10.43
Dytiscidae	14	-28.03	4.22	49.96	58.31	11.22	12.61
Dytiscidae (larvae)	38	-30.62	4.56	5.06	62.49	11.57	15.79
Elmidae	7	-26.19	3.74	297.07	68.19	11.94	15.55
Elmidae (larvae)	3	-29.17	4.51	0.00	75.80	12.05	18.60
<i>Euryhynchus amazoniensis</i>	18	-29.89	8.01	52.14	58.89	10.01	11.76
Georyssidae	1	-32.36	-0.99	0.00	87.47	12.81	15.77
Gerridae	5	-38.11	6.16	3.54	62.94	9.12	12.85
Haliplidae	11	-33.92	2.55	0.00	68.08	14.18	18.86
Haliplidae (larvae)	7	-33.79	1.52	0.00	76.11	11.11	16.76
<i>Hemigrammus ocellifer</i>	19	-28.35	7.52	0.00	69.57	12.85	13.92
<i>Hemigrammus rodwayi</i>	54	-30.88	7.41	9.62	58.88	12.61	12.90
<i>Hemigrammus unilineatus cayennensis</i>	65	-28.5	7.75	1.11	58.85	12.75	13.47
Hirudinea	38	-25.45	9.65	2.10	79.32	14.14	18.82
Hydrometridae	1	-36.26	6.62	0.00	73.97	13.57	20.36
Hydrophilidae	12	-30.96	2.37	0.00	67.10	14.43	18.67
Hydrophilidae (larvae)	4	-32.14	2.63	0.00	50.02	9.42	13.42
Hydroptilidae	82	-36.33	4.07	0.00	68.84	12.49	16.07

Isopoda	5	-32.91	3.09	0.00	73.97	13.57	20.36
<i>Krobia aff guianensis</i> sp 1	11	-30.04	10.53	68.80	71.86	12.40	15.21
<i>Krobia aff guianensis</i> sp 2	3	-27.80	8.53	0.00	66.55	11.22	11.29
Leptophlebiidae	9	-34.75	5.15	1760.85	55.61	7.99	13.87
Lestidae	27	-28.62	7.53	0.00	63.91	12.32	15.69
Libellulidae	221	-31.55	5.12	91.93	67.76	12.22	13.61
Littorinidae	152	-23.83	0.99	0.00	51.12	6.41	6.24
Macrovelidae	10	-28.88	3.12	203.47	70.63	11.71	16.41
<i>Moenkhausia grandisquamis</i>	3	-30.18	7.75	0.00	59.13	7.00	8.00
<i>Moenkhausia hemigrammoides</i>	3	-30.18	7.75	0.00	72.42	10.00	11.00
<i>Moenkhausia surinamensis</i>	23	-28.51	7.11	0.00	50.84	12.74	11.97
<i>Nannostomus beckfordi</i>	8	-26.69	7.77	0.00	59.49	12.33	13.34
Nepidae	4	-26.56	11.13	14.16	84.50	14.25	18.18
Noteridae	47	-30.28	4.97	20.46	67.17	11.18	14.91
Noteridae (larvae)	9	-27.09	3.09	287.19	61.79	11.27	14.54
Oligochaeta	169	-34.94	5.62	223.54	62.30	11.27	14.63
Ostracoda	19	-28.73	2.19	89.86	74.14	14.49	20.28
Palaemonetes	45	-31.92	7.04	34.09	67.31	9.18	10.84
Philopotamidae	1	-36.33	4.07	0.00	67.97	13.40	9.57
Physidae	16	-23.83	0.99	32.64	63.48	10.86	11.96
Planorbidae	57	-23.83	2.32	90.47	53.45	7.90	8.68
Pleidae	7	-34.21	5.37	0.00	68.25	12.25	14.78
<i>Polycentrus punctatus</i>	7	-36.33	7.93	9.50	62.61	12.34	9.78
Polymitarciidae	1	-34.94	3.07	10385.76	59.72	193.26	223.28
<i>Pristella maxilaris</i>	113	-30.36	8.26	24.49	61.88	12.14	12.42
Protoneuridae	7	-28.62	7.53	38.37	86.53	13.37	18.38
<i>Pyrrhulina filamentosa</i>	17	-28.32	7.71	2.17	63.37	12.05	9.38
Rivulidae sp.	1	-28.91	8.21	0.00	57.44	14.88	7.93
<i>Rivulus lungi</i>	25	-28.91	8.21	316.53	57.94	7.97	9.13
<i>Rivulus ocellatus</i>	2	-28.91	8.21	0.00	63.25	7.82	10.75
Scirtidae	1	-32.36	-0.99	0.00	67.22	15.80	19.75
Scirtidae (larvae)	2	-32.36	-0.99	0.00	57.60	7.00	14.00
Simuliidae	3	-35.55	5.5	2612.34	63.70	6.87	14.71
Sphaeriidae	24	-36.33	4.07	0.00	94.65	15.60	21.37
Tabanidae	10	-29.26	5.49	45.22	70.81	13.83	19.46
Tanypodinae	119	-31.04	6.94	191.94	66.70	12.97	15.07
Trichodactylidae	26	-26.09	4.28	0.00	59.82	7.43	8.59
Trichoptera	2	-36.33	4.07	0.00	27.28	11.91	10.92
Veliidae	13	-38.11	6.16	787.38	65.56	8.04	11.24

table S2. Site location, local food-web metrics, and niche width for the 17 sites sampled in this study.

Site	Northing	Easting	Total Organisms	Niche Width	Mean Generality	Mean Vulnerability	Mean Connectance
1	5.631467	-53.7072	219	73.97	20.36	13.57	0.20
2	4.8608	-52.2568	169	45.45	5.00	6.00	0.16
3	4.736183	-52.327	205	57.44	7.93	14.88	0.26
4	4.838083	-52.3533	99	63.70	14.71	6.87	0.21
5	5.296233	-53.0514	31	59.73	8.00	4.00	0.24
6	5.362083	-53.0337	76	27.28	10.92	11.91	0.28
7	5.605467	-53.8277	121	87.47	15.77	12.81	0.24
8	4.834467	-52.3021	123	63.25	10.75	7.82	0.10
9	5.3941	-52.992	412	67.22	19.75	15.80	0.23
10	5.42875	-53.0888	183	72.42	11.00	10.00	0.23
11	5.3772	-52.9539	243	57.60	14.00	7.00	0.19
12	4.3342	-52.1525	126	67.97	9.57	13.40	0.24
13	4.300417	-52.1233	430	95.84	21.44	15.59	0.22
14	5.03535	-52.5165	320	42.44	12.83	11.85	0.27
15	4.929067	-52.4038	208	43.60	7.67	8.63	0.17
16	5.6666	-53.7799	279	59.13	8.00	7.00	0.19
17	5.602283	-53.8364	342	63.70	15.00	12.00	0.23

table S3. Anthropogenic change within 1 km of the environmental change.

Site	Deforestation m² within 1km	Agricultural and urban land cover m² within 1km
1	900	1653125
2	30600	241250
3	17100	16250
4	45000	100000
5	9900	0
6	269100	74375
7	1800	1780000
8	54000	0
9	75600	0
10	24300	0
11	21600	1046875
12	5400	0
13	4500	0
14	18000	892500
15	43200	883750
16	3600	1787500
17	24300	985000