

Supplementary Information

Table 1: Wilcoxon rank-sum comparisons of energy consumption amongst different mammalian body mass classes between Borneo and Peru. NA values are reported when the mass class is not present in both sites to allow for a comparison. All comparisons are statistically significant ($p < 2.2 \times 10^{-16}$). P values were rounded to 0 automatically due to floating point underflow in R.

Mass Class	Median Consumption Borneo	Median Consumption Peru	W	p
Mammal_>10	NA	NA	NA	NA
Mammal2_10-100	34.63924	30.16972	62087482	1.20E-192
Mammal3_100-1000	88.16801	176.93175	7374543	0.00E+00
Mammal4_1000-10000	89.94226	303.49081	484356	0.00E+00
Mammal5_10^4-10^5	60.098	127.92498	8378376	0.00E+00
Mammal6_10^5-10^6	74.17737	27.28481	88399505	0.00E+00

Table 2: Wilcoxon rank-sum comparisons of energy consumption amongst different avian body mass classes between Borneo and Peru. NA values are reported when the mass class is not present in both sites to allow for a comparison. All comparisons are statistically significant ($p < 2.2 \times 10^{-16}$). P values were rounded to 0 automatically due to floating point underflow in R.

Mass Class	Median Consumption Borneo	Median Consumption Peru	W	p
Bird1_<10	19.849425	10.58849	98945428	0.00E+00
Bird2_10-32	187.390179	45.00694	100000000	0.00E+00
Bird3_32-100	111.481362	85.79008	93157144	0.00E+00
Bird4_100-316	42.135807	132.67887	8032	0.00E+00
Bird5_316-1000	NA	NA	NA	NA
Bird6_>1000	6.782259	84.67759	30	0.00E+00

Table 3 : Wilcoxon rank-sum comparisons of energy consumption amongst different avian guilds between Borneo and Peru. All comparisons are statistically significant ($p < 2.2 \times 10^{-16}$). P values were rounded to 0 automatically due to floating point underflow in R.

Guild	Median Consumption Borneo	Median Consumption Peru	W	p
Arboreal Frugivore	55.60629924	56.3215186	48233717	1.52E-05
Arboreal Granivore	0.05073816	0	100000000	0.00E+00
Arboreal Invertivore	156.2887831	90.5213036	99998820	0.00E+00
Arboreal Nectarivore	0.07189219	0.6757186	439	0.00E+00
Arboreal Omnivore	91.3393456	65.0509397	95465391	0.00E+00
Arboreal Vertivore	0.31027556	5.6799216	1	0.00E+00
Generalist Invertivore	18.94807699	0.6843731	100000000	0.00E+00
Generalist Omnivore	5.28373183	0.8971253	99009857	0.00E+00
Terrestrial Granivore	0.11503709	0.8922645	282140	0.00E+00
Terrestrial Invertivore	30.95645926	12.0803847	99714271	0.00E+00
Terrestrial Omnivore	5.87047593	75.5622084	100	0.00E+00

Table 4: Wilcoxon rank-sum comparisons of energy consumption amongst different mammal guilds between Borneo and Peru. All comparisons are statistically significant ($p < 2.2 \times 10^{-16}$). P values were rounded to 0 automatically due to floating point underflow in R.

Guild	Median Consumption Borneo	Median Consumption Peru	W	p
Arboreal Frugivore	17.677177	24.9815859	30936735	0.00E+00
Arboreal Herbivore	7.8789868	80.4969092	365413	0.00E+00
Arboreal Invertivore	37.8220031	0.4334046	100000000	0.00E+00

Arboreal Omnivore	36.0508943	193.4324905	5677	0.00E+00
Arboreal Vertivore	0.4114855	0	100000000	0.00E+00
Terrestrial Herbivore	218.5281944	300.7918904	19317369	0.00E+00
Terrestrial Invertivore	0.8420363	0	100000000	0.00E+00
Terrestrial Omnivore	67.7795684	51.6247321	67309192	0.00E+00
Terrestrial Vertivore	1.9349842	8.2053565	1220739	0.00E+00

Table 5 : Wilcoxon rank-sum comparisons of energy consumption amongst different avian guilds between Borneo and Peru. All comparisons are statistically significant ($p < 2.2 \times 10^{-16}$). P values were rounded to 0 automatically due to floating point underflow in R.

Guild	Median ESWI Borneo	Median ESWI Peru	W	p
Arboreal Frugivore	2.10259	2.4412496	9690567	0.00E+00
Arboreal Granivore	0	0	50000000	0.00E+00
Arboreal Invertivore	3.4122689	4.2236297	0	0.00E+00
Arboreal Nectarivore	0	2.2983675	0	0.00E+00
Arboreal Omnivore	2.6281897	3.3100223	27964	0.00E+00
Arboreal Vertivore	0.1885585	1.4922996		0.00E+00
Generalist Invertivore	1.0033744	0.6550423	97715304	0.00E+00
Generalist Omnivore	0	0	50000000	0.00E+00
Terrestrial Granivore	0	0	50000000	NaN
Terrestrial Invertivore	1.8881958	1.9814108	36754708	6.71E-231
Terrestrial Omnivore	0.9900331	1.7158198	177511	0.00E+00

Table 6 : Wilcoxon rank-sum comparisons of energy consumption amongst different mammal guilds between Borneo and Peru. All comparisons are statistically significant ($p < 2.2 \times 10^{-16}$). P values were rounded to 0 automatically due to floating point underflow in R.

Arboreal Frugivore	0.5975119	0.6521155	37958304	3.31E-191
Arboreal Herbivore	0.6237619	0	100000000	0.00E+00
Arboreal Invertivore	2.4836134	0	100000000	0.00E+00
Arboreal Omnivore	1.8579532	1.7678517	67025544	0.00E+00
Arboreal Vertivore	0.5557422	0	100000000	0.00E+00
Terrestrial Herbivore	1.9005307	2.0736988	18716988	0.00E+00
Terrestrial Invertivore	0.3655036	0	100000000	0.00E+00
Terrestrial Omnivore	0.9870697	0.7926834	74247616	0.00E+00
Terrestrial Vertivore	1.0794725	0.8217579	77067092	0.00E+00

Table 6 : Z-test results comparing energy consumption amongst different bird and mammal guilds between Borneo and Peru.

Animal Group	Guild	Difference	Z value	p
Bird	Arboreal Invertivore	181	7.47	8.23e-14
Bird	Terrestrial Invertivore	47.0	3.94	8.31e- 5
Bird	Arboreal Omnivore	91.1	3.58	3.44e- 4
Bird	Generalist Invertivore	27.8	3.16	1.60e- 3
Bird	Terrestrial Omnivore	-53.7	-2.52	1.17e- 2
Bird	Arboreal Vertivore	-3.56	-1.91	5.68e- 2
Bird	Arboreal Granivore	0.428	1.84	6.59e- 2
Bird	Arboreal Frugivore	43.7	1.54	1.24e- 1

Bird	Generalist Omnivore	11.4	1.53	1.27e- 1
Bird	Arboreal Nectarivore	-0.256	-0.994	3.20e- 1
Bird	Terrestrial Granivore	0.598	0.593	5.53e- 1
Mammal	Arboreal Invertivore	38.3	4.61	3.96e- 6
Mammal	Arboreal Omnivore	-155.	-2.45	1.43e- 2
Mammal	Arboreal Vertivore	0.464	2.14	3.24e- 2
Mammal	Terrestrial Invertivore	0.990	1.73	8.41e- 2
Mammal	Terrestrial Vertivore	-6.66	-1.54	1.24e- 1
Mammal	Arboreal Herbivore	-83	-1.23	2.19e- 1
Mammal	Terrestrial Herbivore	-72.6	-0.734	4.63e- 1
Mammal	Arboreal Frugivore	-7.84	-0.431	6.66e- 1
Mammal	Terrestrial Omnivore	21.0	0.418	6.76e- 1

Table 6 : Z-test results comparing energy consumption amongst different mass classes between Borneo and Peru.

Animal Group	Mass Class	Difference	Z-Value	p
Bird	10-32	220	7.77	7.64e ⁻¹⁵
Bird	32-100	131	4.48	7.38e ⁻⁶
Bird	<10	19	2.95	3.19e ⁻³
Bird	>1000	-63.8	-2.1	3.61e ⁻²
Bird	100-316	-3.88	-0.131	8.96e ⁻¹
Mammal	1000-10000	-208	-1.94	5.18e ⁻²
Mammal	10 ⁴ -10 ⁵	-63.1	-1.12	2.61e ⁻¹
Mammal	100-1000	-81.1	-1.1	2.71e ⁻¹
Mammal	10 ⁵ -10 ⁶	48.9	0.952	3.41e ⁻¹
Mammal	10-100	4.95	0.298	7.66e ⁻¹