Appendix B Tables of Test Results

B1. Chi square tests of the logistic-J vs the log-series distribution in the metastudy

no.	log.-J	log-s	no.	log.-J	log-s	no.	log.-J	log-s
1	5.678	18.124	26	10.283	19.240	51	6.303	18.023
2	7.171	23.067	27	11.019	30.380	52	17.114	15.684
3	7.774	12.604	28	3.047	23.219	53	10.605	19.054
4	7.766	4.120	29	8.030	7.249	54	9.830	29.588
5	5.766	14.295	30	8.690	19.217	55	8.538	11.139
6	9.840	10.237	31	10.378	10.819	56	6.640	12.693
7	7.324	13.407	32	23.520	21.374	57	13.411	8.471
8	12.256	7.081	33	10.737	9.650	58	8.803	7.777
9	10.644	6.829	34	12.426	14.612	59	13.484	17.525
10	13.910	9.943	35	11.583	18.408	60	8.660	10.593
11	9.587	4.418	36	9.228	8.908	61	5.385	13.157
12	4.442	6.805	37	15.526	20.813	62	9.701	7.894
13	6.965	15.390	38	15.981	23.812	63	7.675	8.886
14	10.520	23.216	39	12.654	15.413	64	9.010	9.146
15	16.608	12.982	40	20.424	29.588	65	8.198	2.577
16	3.439	13.397	41	12.426	10.209	66	6.735	8.047
17	8.928	7.081	42	23.520	11.511	67	4.945	2.588
18	10.537	12.672	43	10.737	4.764	68	10.655	7.689
19	12.579	15.644	44	12.426	15.439	69	5.793	5.112
20	9.769	15.916	45	11.583	7.589	70	4.351	6.038
21	10.426	20.438	46	6.916	6.076	71	12.241	18.172
22	12.935	12.523	47	10.272	29.588	72	9.811	8.597
23	5.557	11.037	48	7.313	29.588	73	5.985	8.293
24	6.989	8.339	49	15.622	12.555	74	9.603	17.990
25	10.716	10.156	50	10.952	11.440	75	6.736	10.561

The columns labeled “no.” give the serial numbers of biosurveys included in the study. There is no special significance to this order, being simply the order in which various studies were selected. The columns labeled “log.-J” and “log-s” contain the chi square scores for the logistic-J and log-series distributions, respectively, normalized to ten degrees of freedom.

no.	log.-J	log-s	no.	log--J	log-s	no.	log.-J	log-s
76	9.638	18.686	96	18.046	29.588	116	7.311	10.083
77	8.660	9.868	97	10.789	9.194	117	11.009	14.351
78	7.391	9.739	98	8.281	8.799	118	12.217	11.194
79	19.231	18.403	99	12.288	29.588	119	10.200	12.230
80	8.774	9.497	100	8.837	16.698	120	8.791	15.961
81	14.445	26.176	101	8.682	7.722	121	8.396	21.041
82	19.666	29.588	102	11.992	12.941	122	9.449	6.800
83	12.057	16.063	103	11.587	12.061	123	10.646	18.537
84	11.834	29.588	104	11.644	9.676	124	7.996	14.845
85	11.536	29.588	105	15.370	17.875	125	11.240	16.396
86	11.059	19.907	106	11.239	20.943			
87	14.555	16.440	107	7.806	9.123			
88	9.646	9.651	108	13.474	14.451			
89	15.145	16.249	109	12.563	12.866			
90	10.547	12.078	110	7.426	8.271			
91	6.746	9.906	111	8.543	8.546			
92	8.517	8.684	112	4.765	6.645			
93	10.834	21.311	113	9.327	18.226			
94	12.803	19.943	114	11.056	29.588			
95	14.204	16.395	115	12.372	10.097			

Table B.2 Kolmogoroff-Smirnov test of the logistic-J distribution in taxonomic data

For each possible combination of taxonomic levels one of the tables below shows all the K-S scores achieved by each group of organisms. The groups used reflect what was currently available from internet and library resources. No such source was excluded if it contained a complete -- or at least up-to-date -- taxonomic synopsis for one high-level group or another.

The first column specifies the group, while the second specifies the range or coverage of the data source for that group. Those field manuals accepted for the study are invariably for North America (NA), but the converse is not true. (See the bibliography). The third column contains the Kolmogoroff-Smirnov test results under the heading "score," while the next three columns display critical values of the K-S distribution at the levels of 5%, 10% and 20%. A score that exceeds any of these values fails the K-S test at that level and the corresponding critical value is underlined to indicate an acceptance failure. The numbers of such failures constitute the results of the test in an overall sense.

The column header "# taxa" indicates the number of lower-level taxa involved in the distribution among higher level ones. These numbers amount to a sample size and are used to compute a normalized score (second last column), as described in Section 4.4. Finally, the contribution to overall variance from each individual test is included in the last column. The average normalized score was 0.166.

Species within genera

taxonomic category	**scale**	**score**	**05%**	**10%**	**20%**	**#taxa**	**norm**	**var.**
Gymnospermatophyta	global	0.096	0.250	0.232	0.200	27	0.100	0.004
Pteridophyta	NA	0.088	0.123	0.110	0.097	122	0.194	0.001
Angiospermatophyta	NA	0.062	0.070	0.063	0.055	3735	0.239	0.005
Bacteria	global	0.061	0.062	0.056	0.049	483	0.268	0.010
Aves	global	0.058	0.094	0.085	0.074	2077	0.413	0.061
Arachnida	NA	0.080	0.091	0.082	0.071	224	0.272	0.011
Collembola	global	0.056	0.060	0.054	0.047	519	0.273	0.011
Testudines	global	0.065	0.148	0.133	0.117	84	0.119	0.002
Herpetofauna	NA	0.049	0.122	0.109	0.096	125	0.110	0.003
Mammalia	NA	0.081	0.084	0.075	0.066	265	0.287	0.015

Species within families

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Gymnospermatophyta	NA	0.191	0.432	0.388	0.339	25	0.270	0.011
Pteridophyta	NA	0.161	0.270	0.240	0.214	122	0.194	0.001
Angiospermatophyta	NA	0.092	0.089	0.080	0.070	233	0.281	0.013
Aves	global	0.089	0.114	0.102	0.089	143	0.213	0.002
Arachnida	global	0.094	0.207	0.186	0.163	43	0.123	0.002
Collembola	global	0.267	0.240	0.220	0.193	30	0.292	0.016
Testudines	global	0.199	0.361	0.325	0.284	13	0.143	0.001
Herpetofauna	NA	0.084	0.224	0.201	0.176	37	0.102	0.004
Mammalia	NA	0.087	0.182	0.163	0.143	56	0.130	0.001

Species within orders

taxonomic category	scale	score	05%	10%	20%	# spp,	norm	var.
Aves	global	0.209	0.340	0.250	0.220	23	0.200	0.001
Pisces	global	0.075	0.192	0.173	0.151	50	0.106	0.004
Mammalia	NA	0.169	0.361	0.338	0.295	13	0.122	0.002

Species within phyla

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Bacteria	NA	0.093	0.280	0.214	0.185	33	0.322	0.024

Genera within families

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Gymnospermatophyta	NA	0.122	0.432	0.388	0.339	9	0.073	0.009
Pteridophyta	NA	0.128	0.270	0.240	0.210	25	0.128	0.001
Angiospermatophyta	NA	0.098	0.088	0.079	0.070	237	0.302	0.018
Aves	global	0.061	0.114	0.102	0.089	143	0.146	0.000
Foraminifera	global	0.067	0.109	0.097	0.085	157	0.174	0.000
Pisces	global	0.054	0.065	0.058	0.051	439	0.226	0.004
Arachnida	NA	0.029	0.205	0.184	0.161	44	0.038	0.016
Collembola	global	0.186	0.290	0.220	0.190	30	0.204	0.001
Pogonophora	global	0.182	0.349	0.314	0.274	14	0.136	0.001
Testudines	global	0.108	0.361	0.325	0.284	13	0.078	0.008
Herpetofauna	NA	0.089	0.224	0.201	0.176	37	0.108	0.003
Mammalia	NA	0.065	0.179	0.160	0.092	58	0.099	0.004
Ciliophora	global	0.056	0.082	0.074	0.065	273	0.254	0.008

Genera within orders

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Mammalia	NA	0.218	0.360	0.325	0.284	13	0.157	0.000
Pisces	global	0.069	0.192	0.173	0.151	50	0.098	0.005
Aves	global	0.125	0.330	0.250	0.220	23	0.120	0.002
Ciliophora	global	0.077	0.180	0.162	0.142	57	0.116	0.003

Genera within phyla

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Bacteria	global	0.072	0.290	0.216	0.185	32	0.081	0.007

Families within orders

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Fungi	global	0.128	0.142	0.127	0.112	92	0.246	0.006
Plantae	global	0.068	0.086	0.077	0.067	252	0.216	0.003
Aves	global	0.134	0.300	0.250	0.220	23	0.129	0.001
Pisces	global	0.125	0.192	0.173	0.151	50	0.177	0.000
Insecta	NA	0.071	0.270	0.224	0.200	26	0.072	0.009
Ciliophora	global	0.063	0.180	0.162	0.142	57	0.095	0.005

Families within classes

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Fungi	global	0.125	0.270	0.245	0.220	24	0.122	0.002
Plantae	global	0.077	0.280	0.214	0.185	33	0.088	0.006

Orders within classes

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Fungi	global	0.071	0.270	0.250	0.220	23	0.068	0.010
Animalia	global	0.067	0.142	0.127	0.112	92	0.129	0.001
Plantae	global	0.108	0.260	0.232	0.202	27	0.112	0.003

Orders within phyla

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Animalia	global	0.127	0.250	0.232	0.200	27	0.132	0.001

Classes within phyla

taxonomic category	scale	score	05%	10%	20%	# spp.	norm	var.
Animalia	global	0.071	0.250	0.228	0.200	28	0.075	0.008
Life	global	0.103	0.143	0.129	0.113	90	0.195	0.001