

Supporting material follows

Family	Hilbre	Monks Wood	UK	N. America	Australia	World
Acrididae	1	4	11	550	712	9000
Aeolothripidae	1	0	11	57	24	250
Aeshnidae	1	2	8	34	43	500
Agromyzidae	6	4	300	493	150	2500
Aleyrodidae	0	0	19	100	31	1200
Alydidae	0	0	1	29	9	280
Andrenidae	0	0	67	1200	0	4000
Anobiidae	0	6	28	300	225	1500
Anthocoridae	0	0	27	85	24	500
Anthomyiidae	4	0	225	600	9	1500
Anthophoridae	0	0	43	920	194	4200
Aphididae	8	0	380	1350	157	2250
Aphrophoridae	0	0	9	23	12	850
Apidae	6	18	27	57	14	1000
Arctiidae	6	14	40	264	342	2500
Asilidae	1	1	27	900	640	5000
Baetidae	1	0	14	147	13	800
Berytidae	0	4	9	14	7	180
Bibionidae	4	0	19	78	32	780
Blattellidae	0	0	4	24	140	1750
Blattidae	0	0	3	6	209	600
Bombyliidae	0	1	12	800	391	5000
Bruchidae	0	4	7	135	10	1300
Buprestidae	0	3	12	675	1200	14000
Calliphoridae	4	16	33	80	140	1200
Cantharidae	2	19	41	468	150	4000
Carabidae	21	96	330	2270	1690	25000
Cecidomyiidae	5	0	620	1060	112	4600
Cephidae	0	5	12	12	0	100
Cerambycidae	0	0	60	960	1200	25000
Ceratopogonidae	2	22	165	460	174	2000
Cercopidae	2	0	1	33	9	1400
Chironomidae	16	3	400	820	202	5000
Chloropidae	9	7	142	280	300	2000
Chrysididae	0	1	33	230	76	3000
Chrysomelidae	4	56	254	1480	3000	30000
Chrysopidae	1	6	14	88	55	1600
Cicadellidae	18	67	262	2700	664	21000
Cicadidae	0	0	1	166	250	2500

Cicindellidae	0	0	6	108	110	2000
Cimicidae	2	5	4	14	1	90
Cleridae	0	5	10	270	350	3500
Coccidae	0	0	35	92	80	1250
Coccinellidae	8	20	41	400	300	5000
Coenagrionidae	1	3	12	92	30	1000
Coleophoridae	4	1	101	168	30	800
Colletidae	1	0	20	155	860	3000
Coreidae	0	0	10	120	57	2000
Corixidae	5	10	34	132	31	525
Cossidae	0	0	3	45	200	1000
Culicidae	0	18	36	150	275	3100
Curculionidae	18	88	400	2700	6000	41000
Cydnidae	0	0	9	36	43	400
Danaidae	0	1	1	4	12	300
Delphacidae	3	8	70	145	64	1800
Dermeestidae	0	6	16	130	150	800
Diprionidae	0	0	7	41	0	100
Dolichopodidae	14	23	270	1230	320	5500
Drosophilidae	5	10	52	117	247	2900
Dytiscidae	8	20	110	475	177	3500
Ectopsocidae	0	0	1	9	25	120
Elateridae	3	17	65	890	800	8500
Embiop all 8 families	0	0	0	10	65	200
Empidae	16	31	350	730	88	3500
Ephemeroidea	0	0	3	13	0	150
Ephydriidae	4	5	130	430	85	1400
Erotylidae	0	2	7	65	50	2000
Formicidae	3	7	42	600	3000	8800
Gelechiidae	5	3	145	635	1580	4200
Geometridae	44	111	270	1400	2310	18000
Geotrupidae	2	1	8	51	140	550
Gerridae	2	3	9	45	32	500
Gracillariidae	3	5	80	280	450	1200
Gryllidae	0	0	3	96	715	1800
Gryllotalpidae	0	0	1	7	10	60
Gyrinidae	1	1	12	58	20	750
Halictidae	2	0	58	502	382	5000
Heleomyzidae	1	5	60	115	67	500
Hemerobiidae	1	9	29	58	35	900
Heptageniidae	0	0	11	133	0	550
Hesperiidae	2	6	8	300	122	3500

Hippoboscidae	0	0	10	30	30	200
Hydrometridae	0	1	2	9	8	110
Hydroptilidae	1	0	29	200	101	1000
Labiduridae	0	0	1	1	15	75
Labiidae	0	0	2	9	15	512
Lampyridae	0	1	2	128	25	2000
Lasiocampidae	1	6	11	35	90	1500
Lepismatidae	0	0	2	13	16	200
Leptophlebiidae	0	0	6	70	54	600
Lestidae	0	0	2	18	14	200
Leuctridae	0	0	6	45	0	200
Libellulidae	0	1	13	91	55	1250
Limnephilidae	8	9	54	310	3	1500
Lucanidae	0	2	3	32	85	1250
Lycaenidae	3	9	18	138	140	6000
Lygaeidae	5	7	75	300	401	3500
Lymantriidae	2	4	10	35	129	2600
Machilidae	1	0	7	14	0	250
Mantidae	0	0	0	20	116	1400
Megachilidae	0	0	40	682	171	3000
Meloidae	0	0	9	315	60	2000
Membracidae	0	1	2	258	57	2500
Menoponidae	0	0	146	260	50	650
Miridae	12	65	210	1950	600	7000
Mordellidae	0	6	10	207	120	1250
Muscidae	16	50	275	622	180	3000
Mutillidae	0	0	3	480	500	5000
Mycetophilidae	3	7	420	720	250	3000
Myrmeleontidae	0	0	0	80	250	1000
Nabidae	1	7	13	48	20	400
Nepidae	1	0	2	13	10	200
Nitidulidae	2	29	95	185	300	2800
Noctuidae	83	152	350	3000	2000	25000
Notonectidae	1	3	4	35	40	300
Nymphalidae	11	13	18	140	85	3500
Oecophoridae	8	2	80	230	5550	3500
Oestridae	0	0	10	1	3	160
Panorpidae	0	0	3	40	0	360
Papilionidae	0	0	1	35	18	700
Pediculidae	0	0	1	1	1	2
Pentatomidae	1	3	18	250	391	5250
Perlodidae	1	0	5	98	0	250
Phasmatidae	0	0	0	1	100	600
Phlaeothripidae	1	0	38	348	267	2700

Phoridae	3	0	277	360	90	2800
Phryganeidae	0	0	10	26	0	500
Pieridae	5	7	10	65	32	1300
Plutellidae	0	0	19	52	78	380
Pompilidae	0	0	41	290	231	4000
Pseudococcidae	0	0	35	280	240	2000
Psilidae	2	2	28	35	2	250
Psocidae	0	3	12	62	60	500
Psychodidae	6	1	76	91	115	1000
Psyllidae	3	0	78	260	330	1500
Pulicidae	0	2	9	16	19	200
Pyralidae	25	28	165	1380	1670	17500
Raphidiidae	0	2	4	18	0	85
Reduviidae	0	1	6	110	300	5500
Rhinotermitidae	0	0	0	9	30	200
Rhopalidae	0	1	8	36	6	150
Saldidae	2	1	22	76	16	300
Sarcophagidae	1	0	55	330	67	2100
Saturniidae	0	0	1	69	16	1100
Satyridae	0	7	11	50	25	2000
Scarabaeidae	2	11	89	1400	2189	20000
Scathophagidae	4	0	53	148	0	250
Scolytidae	0	10	54	500	See note	9000
Sepsidae	3	7	26	35	16	250
Sesiidae	0	3	15	120	19	1000
Sialidae	0	1	2	23	4	75
Silphidae	0	27	21	42	3	250
Simuliidae	0	5	37	150	38	1500
Siricidae	0	0	1	20	1	100
Sphaeroceridae	13	0	110	120	60	950
Sphecidae	1	2	115	1140	744	8000
Sphingidae	5	8	18	124	65	1200
Staphylinidae	23	290	825	3200	1200	27000
Stenopsocidae	0	0	3	1	1	45
Stratiomyidae	2	0	50	260	92	1800
Stylopidae	0	0	13	80	65	260
Syrphidae	23	52	245	870	169	6000
Tabanidae	0	7	28	350	243	4100
Tenebrionidae	4	1	37	1008	1500	15000
Tenthredinidae	13	23	400	735	4	4000
Tephritidae	3	8	72	280	135	4500
Tetrigidae	0	0	3	29	70	1000
Tettigoniidae	0	4	6	243	900	5000
Thripidae	2	0	105	265	128	1500
Tineidae	2	0	47	180	440	2500

Tingidae	0	7	23	160	148	1820
Tiphiidae	0	0	3	225	750	1500
Tipulidae	15	20	318	1525	704	15000
Tortricidae	21	31	308	1060	1230	4500
Trichodectidae	0	0	21	137	6	350
Vespidae	2	5	30	415	370	3800
176 families	619	1738	12161	62956	58974	615669

Note: the 6000 Australian species of Curculionidae includes the Scolytidae

Supporting Table 2 follows

Table S2 - Analysis of the occurrence of 'peaks' and 'troughs' within the size-frequency distributions in Fig. 2 - in specific size classes, across all spatial scales. The extent to which they co-occur in particular size classes is statistically significant (based on exact two-way Chi-square test of association) and measured by Kappa's coefficient of association (0 = no association, 1 = perfect association) (StatXact for Windows 4, 1998)

Plotting body size (mm)	Hilbre	Monks Wood	UK	N. America	World	
1.565	Hillside	Hillside	Hillside	Hillside	Hillside	
2.085	Hillside	Hillside	Hillside	Hillside	Hillside	
2.785	Peak	Peak	Peak	Peak	Peak	
3.71	Trough	Trough	Trough	Trough	Trough	
4.91	Hillside	Hillside	Hillside	Hillside	Hillside	
6.55	Peak	Peak	Peak	Hillside	Peak	
8.75	Hillside	Hillside	Hillside	Peak	Hillside	
11.65	Hillside	Hillside	Hillside	Hillside	Hillside	
15.65	Hillside	Hillside	Hillside	Hillside	Trough	
20.85	Trough	Trough	Hillside	Hillside	Peak	
27.85	Hillside	Hillside	Trough	Trough	Trough	
37.1	Peak	Peak	Peak	Peak	Peak	
49.1	Trough	Trough	Trough	Trough	Trough	
65.5	Peak	Peak	Peak	Peak	Peak	
	Hilbre	MW	UK	NA	World	
Hilbre		<0.001	0.001	0.0353	0.0025	pairwise table of <i>p</i>-values for exact Chi-square tests of association
MW	1		0.001	0.0353	0.0025	
UK	0.77	0.77		0.0003	0.0005	
NA	0.54	0.54	0.77		0.0098	
World	0.67	0.67	0.78	0.57		
	Kappa coefficients of association					

Supporting Table 3 follows

Table S3 - The 176 Families used in the analysis

Family (after removal of parasitic wasps)	Geomean (mm) - corresponding to families in alphabetic order	Geomean (mm) - sorted on size	Family (after removal of parasitic wasps)
Acrididae	28.28	0.46	Dolichopodidae
Aeolothripidae	1.41	1.18	Thripidae
Aeshnidae	77.78	1.41	Aeolothripidae
Agromyzidae	2.45	1.41	Stylopidae
Aleyrodidae	1.73	1.73	Aleyrodidae
All (8) families Embioptera	7.75	1.73	Trichodectidae
Alydidae	13.42	1.90	Phoridae
Andrenidae	8.94	2.24	Simuliidae
Anobiidae	2.83	2.24	Sphaeroceridae
Anthocoridae	3.16	2.24	Stenopsocidae
Anthomyiidae	4.90	2.29	Ectopsocidae
Anthophoridae	9.17	2.29	Pediculidae
Aphididae	2.83	2.45	Ceratopogonidae
Aphrophoridae	8.49	2.45	Chloropidae
Apidae	9.00	2.45	Drosophilidae
Arctiidae	37.42	2.45	Psocidae
Asilidae	12.25	2.45	Pulicidae
Baetidae	6.00	2.45	Agromyzidae
Berytidae	6.71	2.45	Menoponidae
Bibionidae	7.42	2.45	Zorotypidae
Blattellidae	14.14	2.60	Phlaeothripidae
Blattidae	32.86	2.74	Psyllidae
Bombyliidae	7.48	2.74	Psychodidae
Bruchidae	4.47	2.83	Aphididae
Buprestidae	11.40	2.83	Cecidomyiidae
Calliphoridae	8.00	2.83	Scolytidae
Cantharidae	9.49	3.00	Chironomidae
Carabidae	13.04	3.16	Coccinellidae
Cecidomyiidae	2.83	3.16	Anthocoridae
Cephidae	8.49	3.16	Tingidae
Cerambycidae	23.24	3.46	Dermestidae
Ceratopogonidae	2.45	3.46	Hydroptilidae
Cercopidae	10.00	3.46	Pseudococcidae
Chironomidae	3.00	3.46	Sepsidae
Chloropidae	2.45	3.74	Nitidulidae
Chrysididae	7.35	4.00	Boreidae
Chrysomelidae	5.92	4.06	Empidae
Chrysopidae	15.81	4.24	Cimicidae
Cicadellidae	7.75	4.24	Delphacidae
Cicadidae	35.57	4.24	Hippoboscidae
Cicindellidae	12.00	4.47	Bruchidae

Cimicidae	4.24	4.47	Cydnidae
Cleridae	7.75	4.47	Formicidae
Coccidae	4.90	4.47	Heleomyzidae
Coccinellidae	3.16	4.58	Saldidae
Coenagrionidae	30.00	4.69	Ephydriidae
Coleophoridae	10.25	4.74	Miridae
Colletidae	7.35	4.90	Coccidae
Coreidae	20.00	4.90	Muscidae
Corixidae	6.71	4.90	Psilidae
Cossidae	38.73	4.90	Anthomyiidae
Culicidae	5.20	5.10	Mycetophilidae
Curculionidae	7.07	5.20	Culicidae
Cydnidae	4.47	5.48	Mordellidae
Danaidae	77.46	5.83	Notonectidae
Delphacidae	4.24	5.83	Stratiomyidae
Dermestidae	3.46	5.92	Chrysomelidae
Diprionidae	8.66	6.00	Baetidae
Dolichopodidae	0.46	6.00	Lygaeidae
Drosophilidae	2.45	6.00	Nabidae
Dytiscidae	8.25	6.16	Gerridae
Ectopsocidae	2.29	6.24	Scathophagidae
Elateridae	10.95	6.32	Sarcophagidae
Empidae	4.06	6.32	Staphylinidae
Ephemeridae	17.89	6.32	Tephritidae
Ephydriidae	4.69	6.71	Corixidae
Erotylidae	8.66	6.71	Berytidae
Formicidae	4.47	6.93	Hemerobiidae
Gelechiidae	13.75	6.93	Rhinotermitidae
Geometridae	24.25	6.93	Gyrinidae
Geotrupidae	14.49	7.07	Curculionidae
Gerridae	6.16	7.35	Chrysididae
Gracillariidae	9.38	7.35	Colletidae
Gryllidae	13.42	7.42	Bibionidae
Gryllotalpidae	30.00	7.48	Leptophlebiidae
Gyrinidae	6.93	7.75	Cicadellidae
Halictidae	7.75	7.75	Cleridae
Heleomyzidae	4.47	7.75	Halictidae
Hemerobiidae	6.93	7.75	all (8) families
Heptageniidae	7.75	7.75	Heptageniidae
Hesperiidae	36.06	8.00	Calliphoridae
Hippoboscidae	4.24	8.060	Membracidae
Hydrometridae	10.25	8.12	Tenthredinidae
Hydroptilidae	3.46	8.25	Dytiscidae
Labiduridae	18.71	8.37	Rhopalidae
Labiidae	8.49	8.49	Aphrophoridae
Lampyridae	11.18	8.49	Cephalidae
Lasiocampidae	54.77	8.49	Labiidae
Lepismatidae	12.65	8.66	Diprionidae
Leptophlebiidae	7.48	8.66	Erotylidae

Lestidae	45.25	8.66	Mutillidae
Libellulidae	44.72	8.94	Andrenidae
Limnephilidae	14.49	9.00	Apidae
Lucanidae	22.58	9.17	Anthophoridae
Lycaenidae	27.39	9.17	Machilidae
Lygaeidae	6.00	9.38	Gracillariidae
Lymantriidae	34.64	9.38	Sphecidae
Machilidae	9.17	9.49	Cantharidae
Mantidae	54.77	9.49	Tenebrionidae
Megachilidae	12.12	10.00	Cercopidae
Meloidae	13.23	10.10	Syrphidae
Membracidae	8.060	10.25	Coleophoridae
Menoponidae	2.45	10.25	Hydrometridae
Miridae	4.74	10.39	Tetrigidae
Mordellidae	5.48	10.95	Elateridae
Muscidae	4.90	10.95	Tiphiidae
Mutillidae	8.66	11.18	Lampyridae
Mycetophilidae	5.10	11.40	Buprestidae
Myrmeleontidae	64.81	12.00	Cicindellidae
Nabidae	6.00	12.12	Megachilidae
Nepidae	25.98	12.25	Asilidae
Nitidulidae	3.74	12.25	Perlodidae
Noctuidae	34.64	12.65	Lepismatidae
Notonectidae	5.83	12.65	Tineidae
Nymphalidae	57.45	12.96	Raphidiidae
Oecophoridae	15.23	12.96	Tabanidae
Oestridae	14.14	13.04	Carabidae
Panorpidae	15.00	13.23	Meloidae
Papilionidae	79.06	13.23	Pentatomidae
Pediculidae	2.29	13.42	Alydidae
Pentatomidae	13.23	13.42	Gryllidae
Perlodidae	12.25	13.75	Gelechiidae
Phasmatidae	57.01	14.14	Oestridae
Phlaeothripidae	2.60	14.14	Blattellidae
Phoridae	1.90	14.14	Sialidae
Phryganeidae	17.66	14.14	Silphidae
Pieridae	37.42	14.14	Vespidae
Plutellidae	14.83	14.49	Limnephilidae
Pompilidae	16.58	14.49	Geotrupidae
Pseudococcidae	3.46	14.83	Plutellidae
Psilidae	4.90	15.00	Panorpidae
Psocidae	2.45	15.23	Oecophoridae
Psychodidae	2.74	15.81	Chrysopidae
Psyllidae	2.74	16.49	Tortricidae
Pulicidae	2.45	16.58	Pompilidae
Pyralidae	20.00	16.73	Reduviidae
Raphidiidae	12.96	17.32	Scarabaeidae
Reduviidae	16.73	17.66	Grylloblattidae
Rhinotermitidae	6.93	17.66	Phryganeidae

Rhopalidae	8.37	17.89	Ephemeridae
Saldidae	4.58	18.71	Labiduridae
Sarcophagidae	6.32	18.97	Tipulidae
Saturniidae	61.24	20.00	Coreidae
Satyridae	45.52	20.00	Pyralidae
Scarabaeidae	17.32	22.58	Lucanidae
Scathophagidae	6.24	23.24	Cerambycidae
Scolytidae	2.83	23.66	Sesiidae
Sepsidae	3.46	24.25	Geometridae
Sesiidae	23.66	25.98	Nepidae
Sialidae	14.14	27.39	Lycaenidae
Silphidae	14.14	28.28	Acrididae
Simuliidae	2.24	28.28	Siricidae
Siricidae	28.28	30.00	Coenagrionidae
Sphaeroceridae	2.24	30.00	Gryllotalpidae
Sphecidae	9.38	32.86	Blattidae
Sphingidae	72.46	33.54	Tettigoniidae
Staphylinidae	6.32	34.64	Lymantriidae
Stenopsocidae	2.24	34.64	Noctuidae
Stratiomyidae	5.83	35.57	Cicadidae
Stylopidae	1.41	36.06	Hesperiidae
Syrphidae	10.10	37.42	Arctiidae
Tabanidae	12.96	37.42	Pieridae
Tenebrionidae	9.49	38.73	Cossidae
Tenthredinidae	8.12	44.72	Libellulidae
Tephritidae	6.32	45.25	Lestidae
Tetrigidae	10.39	45.52	Satyridae
Tettigoniidae	33.54	54.77	Lasiocampidae
Thripidae	1.18	54.77	Mantidae
Tineidae	12.65	57.01	Phasmatidae
Tingidae	3.16	57.45	Nymphalidae
Tiphiidae	10.95	61.24	Saturniidae
Tipulidae	18.97	64.81	Myrmeleontidae
Tortricidae	16.49	72.46	Sphingidae
Trichodectidae	1.73	77.46	Danaidae
Vespidae	14.14	77.78	Aeshnidae
Zorotypidae	2.45	79.06	Papilionidae
176 families			

Fig. S1

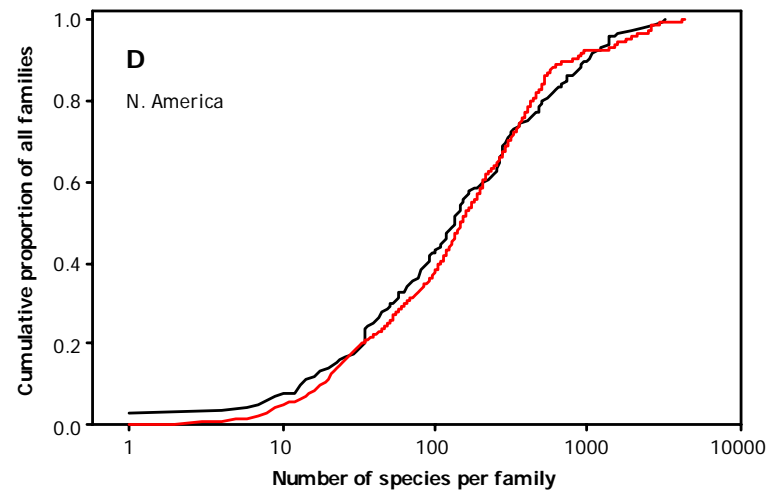
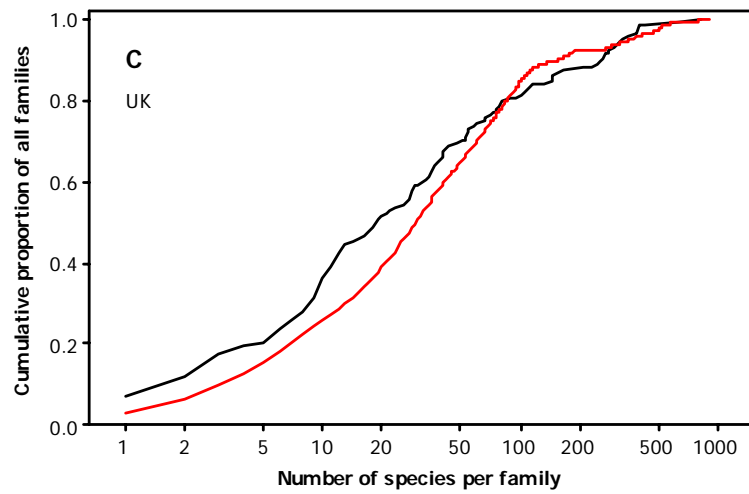
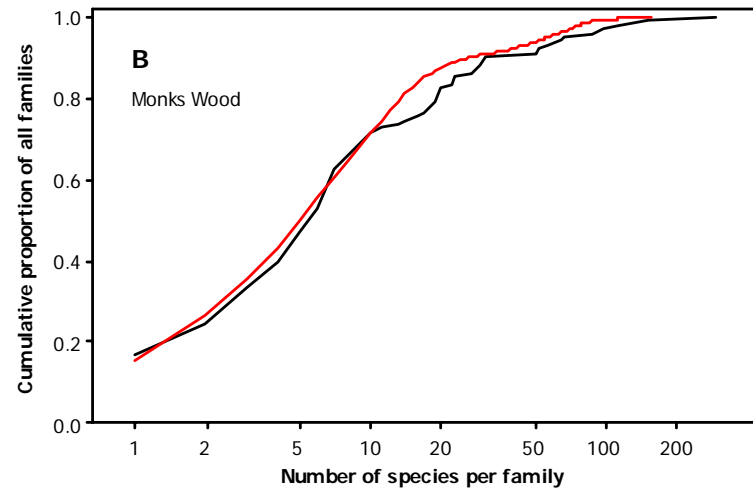
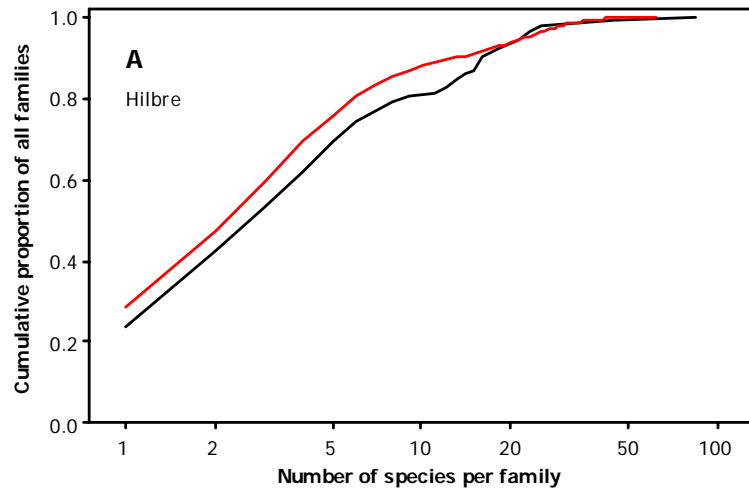


Figure S1 (Legend) – Comparison of the cumulative distributions of the proportion of families represented by k species. The observed distributions for (A) Hilbre, (B) Monks Wood, (C) UK and (D) North America are each compared with that expected by taking a random sub-sample of the same total number of species from the World dataset (Supporting Table 2). The expected was based on averaging the distributions of 1000 random sub-samples. The maximum differences (D) between observed and expected cumulative distribution were: 0.073 (Hilbre), 0.085 (Monks Wood), 0.142 (UK) and 0.076 (N. America). Based on similar random sub-sampling of the UK dataset, the values of D were 0.075 (Hilbre) and 0.099 (Monks Wood).