

ELECTRONIC APPENDIX

This is the Electronic Appendix to the article

Coevolving avian eye size and brain size in relation to prey capture and nocturnality

by

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Electronic appendices are refereed with the text; however, no attempt is made to impose a uniform editorial style on the electronic appendices.

ELECTRONIC APPENDIX A

Erratum: This database has been corrected on 12/8/04 for eye size. This correction does not affect any results of the corresponding paper.

Eye size (volumes in cm³), brain size (g) and body mass (g), prey capture technique, nocturnality and water related feeding of birds. See Methods for definitions. Values are means, s.e., sample size.

Species	Eye size (cm ³)			Brain size (g)			Body mass (g)			Prey capture technique	Nocturnality	Aquatic feeding
	mean	s. e.	N	mean	s. e.	N	mean	s. e.	N			
<i>Acanthis cannabina</i>	0.20		1	0.67	0.025	11	18.78	0.444	11	1	1	1
<i>Acanthis flammea</i>	0.12		1	0.60	0.033	3	12.13	0.372	3	1	1	1
<i>Accipiter gentilis</i>				7.62	0.089	16	846.78	56.732	16	3	1	1
<i>Accipiter nisus</i>	3.01	0.097	22	2.93	0.053	25	210.88	10.094	28	3	1	1
<i>Acrocephalus orientalis</i>	0.53	0.019	3	0.87		1	23.98	1.732	3	2	1	1
<i>Alauda arvensis</i>	0.60	0.009	2	0.97	0.027	6	39.77	1.176	7	2	1	1
<i>Alcedo atthis</i>	0.74	0.031	6	0.81	0.013	19	36.30	1.142	19	3	1	3
<i>Alisterus scapularis</i>	1.84	0.012	6	4.56	0.282	7	203.11	11.540	7	1	1	1
<i>Alle alle</i>	1.38	0.037	4	1.86	0.060	12	136.32	6.584	12	3	1	3
<i>Amazona aestiva</i>	2.54		1	7.85	0.591	3	285.93	56.355	3	1	1	1
<i>Amazona amazonica</i>	3.06	0.032	9	8.42	0.452	3	303.92	10.942	10	1	1	1
<i>Amazona finschi</i>	2.75		1	7.92	0.198	4	298.00	36.725	4	1	1	1
<i>Amazona ochrocephala</i>	2.91	0.074	3	8.01	0.812	3	295.83	70.487	3	1	1	1
<i>Anas platyrhynchos</i>				5.82	0.230	7	1252.14	46.443	7	2	1	3

<i>Andigena bailloni</i>	2.48		1	2.90	0.098	3	168.53	11.146	3	1	1	1
<i>Anthus berthelotii</i>	0.37	0.019	4	0.52	0.038	4	15.99	0.285	4	2	1	1
<i>Apus apus</i>	0.90	0.032	4	0.69	0.023	5	40.00	4.328	5	3	1	1
<i>Ara ararauna</i>				13.37	3.085	4	530.48	155.545	4	1	1	1
<i>Ara manilata</i>	1.95	0.022	2	8.36	0.480	2	270.75	20.750	2	1	1	1
<i>Ardea cinerea</i>				7.91	0.163	6	1550.33	184.047	6	3	2	2
<i>Asio flammeus</i>				5.45	0.563	4	349.88	53.798	4	3	2	1
<i>Asio otus</i>	5.41	0.019	13	5.73	0.064	70	284.30	4.040	71	3	3	1
<i>Bombycilla garrulus</i>	0.71	0.011	18	1.18	0.013	30	60.71	1.190	30	2	1	1
<i>Bombycilla japonica</i>	0.65	0.016	2	1.10	0.069	5	47.48	6.101	5	2	1	1
<i>Buteo buteo</i>	10.68	0.308	6	7.90	0.061	68	744.91	20.241	68	3	1	1
<i>Buteo lagopus</i>				8.59	0.268	6	842.67	65.884	6	3	2	1
<i>Calidris acuminata</i>	0.64	0.014	4				65.00		1	2	1	1
<i>Calidris alpina</i>	0.45	0.017	5	0.86	0.014	6	35.83	1.111	6	2	1	1
<i>Calidris maritima</i>	0.58	0.038	2	1.09	0.185	2	72.88	11.042	3	2	1	1
<i>Calidris ruficollis</i>	0.31	0.016	9				29.00	0.949	5	2	1	1
<i>Calidris subminuta</i>	0.33	0.041	2				24.62	0.255	2	2	1	1
<i>Caprimulgus europaeus</i>	1.71		1	0.74	0.063	3	72.94	5.193	3	3	2	1
<i>Carduelis ambigua</i>	0.24	0.022	2	0.66	0.040	2	14.10	0.600	2	1	1	1
<i>Carduelis carduelis</i>	0.16	0.018	3	0.59	0.021	21	15.00	0.475	21	1	1	1
<i>Carduelis chloris</i>	0.27	0.007	10	0.89	0.016	41	26.50	0.394	43	1	1	1
<i>Carduelis spinus</i>	0.14	0.014	6	0.56	0.023	11	12.08	0.447	12	1	1	1
<i>Carpodacus roseus</i>	0.39	0.049	2	1.01	0.020	3	21.15	0.797	3	1	1	1
<i>Certhia familiaris</i>	0.12	0.006	2	0.55	0.033	5	8.42	0.174	5	2	1	1
<i>Chalcophaps indiacca</i>	0.89	0.091	2	0.70		1	72.30	14.700	2	1	1	1
<i>Charadrius leschenaultii</i>	1.91	0.025	5	1.24	0.035	2	75.96	2.119	4	2	1	1
<i>Cinclodes fuscus</i>	0.59	0.019	2	0.93	0.020	2	30.45	2.650	2	2	1	1
<i>Cinclus cinclus</i>	0.55	0.009	2	1.25	0.167	3	61.36	5.443	3	3	1	2
<i>Circus aeruginosus</i>				5.97	0.139	3	617.00	65.919	3	3	1	1
<i>Cissa chinensis</i>	2.08	0.019	2	4.33	0.125	2	106.50	9.500	2	2	1	1
<i>Clangula hyemalis</i>				4.66	0.173	11	759.03	25.712	11	2	1	3
<i>Columba palumbus</i>	2.09		1	2.38	0.078	3	486.83	37.076	3	1	1	1

<i>Columbina cruziana</i>	0.43		1	0.53	0.010	2	46.05	3.650	2	1	1	1
<i>Corvus corax</i>				15.31	0.790	2	1405.00	55.000	2	2	1	1
<i>Corvus cornix</i>				8.85	0.125	42	517.90	11.043	42	2	1	1
<i>Corvus corone</i>				7.36	0.120	2	523.95	14.550	2	2	1	1
<i>Corvus frugilegus</i>				8.13	0.402	4	509.30	41.432	4	2	1	1
<i>Corvus monedula</i>	1.87	0.034	2	4.69	0.161	11	211.29	13.111	11	2	1	1
<i>Corythornis cristata</i>	0.39		1	0.34	0.027	3	10.90	1.222	3	3	1	3
<i>Crex crex</i>	0.80		1	1.29	0.038	3	184.77	26.869	3	2	1	1
<i>Cuculus canorus</i>	1.95		1	2.24	0.709	9	104.22	5.252	9	2	1	1
<i>Emberiza citrinella</i>	0.37	0.013	11	0.82	0.015	36	28.58	0.389	36	1	1	1
<i>Emberiza rutila</i>	0.26	0.003	2	0.59	0.065	3	17.18	0.815	3	1	1	1
<i>Emberiza schoeniclus</i>	0.28		1	0.68	0.047	3	20.57	0.467	3	1	1	1
<i>Eremophila biloba</i>	0.41		1	0.85	0.080	2	23.55	0.850	2	1	1	1
<i>Erithacus rubecula</i>	0.50	0.015	12	0.66	0.017	29	16.75	0.387	31	2	1	1
<i>Falco tinnunculus</i>	3.54	0.035	5	3.68	0.050	30	186.95	6.055	30	3	2	1
<i>Ficedula hypoleuca</i>	0.33		1	0.45	0.017	5	12.76	0.984	5	3	1	1
<i>Fratercula arctica</i>				4.05	0.150	2	352.00	33.500	2	3	1	3
<i>Fringilla coelebs</i>	0.34	0.012	15	0.77	0.012	59	24.26	0.301	62	1	1	1
<i>Fringilla montifringilla</i>	0.30	0.011	4	0.78	0.016	15	24.94	0.740	15	1	1	1
<i>Fulica atra</i>				3.21	0.134	4	518.33	60.601	4	2	1	2
<i>Furnarius rufus</i>	1.00	0.047	3	1.35	0.029	3	63.70	0.693	3	2	1	1
<i>Galerida cristata</i>	0.58	0.031	2	1.08	0.060	3	42.13	0.416	3	2	1	1
<i>Gallixrex cinerea</i>	1.73	0.013	2				367.50	75.500	2	2	2	2
<i>Gallinago gallinago</i>	0.80	0.068	3	1.35	0.045	14	107.56	5.014	15	2	2	1
<i>Gallinula chloropus</i>	1.15		1	2.05	0.050	7	324.03	28.452	7	2	1	2
<i>Gallus sonneratii</i>	2.88		1	3.33	0.313	3	717.00	205.768	3	1	1	1
<i>Garrulus glandarius</i>	2.36	0.055	3	4.15	0.113	46	168.89	2.497	46	1	1	1
<i>Halcyon chloris</i>	1.23	0.047	2				56.00	1.000	2	3	1	3
<i>Hippolais icterina</i>	0.29	0.020	3	0.54	0.024	7	12.74	0.525	7	2	1	1
<i>Hirundo rustica</i>	0.36	0.013	16	0.58	0.019	27	17.54	0.426	29	3	1	1
<i>Irena puella</i>	0.99	0.016	2	1.12	0.027	3	58.37	5.905	3	1	1	1
<i>Jynx torquilla</i>	0.52	0.019	3	0.85	0.028	9	36.69	1.253	9	2	1	1

<i>Lagopus lagopus</i>	2.56		1	2.45	0.112	6	542.12	24.501	6	1	1	1
<i>Lagopus mutus</i>	2.26	0.028	2	2.46	0.280	2	519.33	16.455	3	1	1	1
<i>Lanius collurio</i>	0.81	0.019	2	1.00	0.082	3	28.47	0.133	3	3	1	1
<i>Lanius excubitor</i>	1.33		1	1.48	0.100	2	59.63	4.425	2	3	1	1
<i>Larus canus</i>	4.47	0.039	4	3.80	0.140	8	360.05	21.109	8	3	1	1
<i>Larus ridibundus</i>	2.34	0.055	2	2.88	0.074	12	256.18	12.417	12	3	1	1
<i>Lessonia rufa</i>	0.30	0.012	4	0.44	0.031	3	14.48	0.382	4	3	1	1
<i>Lonchura bicolor</i>	0.14		1	0.44	0.025	2	9.69	0.015	2	1	1	1
<i>Lonchura flaviprymna</i>	0.14		1	0.43	0.025	2	11.68	0.975	2	1	1	1
<i>Lonchura molucca</i>	0.10	0.016	2	0.40	0.025	2	10.25	0.305	2	1	1	1
<i>Lophortyx gambelii</i>	0.91	0.041	2	1.16	0.125	2	162.25	5.750	2	1	1	1
<i>Megalaima asiatica</i>	1.21	0.016	2	1.64	0.140	2	98.90	14.700	2	1	1	1
<i>Mergus merganser</i>				6.95	0.349	5	1448.00	131.354	5	3	1	3
<i>Mergus serrator</i>				5.50	0.119	3	1092.00	200.642	3	3	1	3
<i>Motacilla alba</i>	0.31	0.017	9	0.58	0.024	15	18.96	0.672	15	2	1	1
<i>Nectarinia venusta</i>	0.11		1	0.31	0.009	9	4.96	0.197	9	1	1	1
<i>Nucifraga caryocatactes</i>				5.71	0.175	3	189.47	7.541	3	1	1	1
<i>Oenanthe oenanthe</i>	0.61		1	0.72	0.021	7	25.09	1.320	8	2	1	1
<i>Panurus biarmicus</i>	0.15	0.013	2	0.57	0.020	6	13.94	0.858	7	2	1	1
<i>Parus ater</i>	0.12	0.044	2	0.51	0.040	2	8.00	0.436	3	2	1	1
<i>Parus caeruleus</i>	0.18	0.020	4	0.65	0.030	12	10.79	0.255	13	2	1	1
<i>Parus cyanus</i>	0.24	0.031	2	0.66	0.005	2	9.95	0.950	2	2	1	1
<i>Parus major</i>	0.31	0.014	9	0.85	0.021	24	17.02	0.346	26	2	1	1
<i>Parus venustulus</i>	0.18		1	0.53	0.015	2	10.54	0.105	2	2	1	1
<i>Passer domesticus</i>	0.34	0.017	22	0.92	0.013	51	28.49	0.351	50	1	1	1
<i>Passer hispaniolensis</i>	0.25	0.013	3	0.93	0.020	3	27.13	2.697	3	1	1	1
<i>Passer montanus</i>	0.25	0.011	12	0.79	0.017	27	21.38	0.403	28	1	1	1
<i>Passer rutilans</i>	0.26		1	0.68	0.030	2	18.35	2.510	2	1	1	1
<i>Perdix perdix</i>	1.39		1	1.89	0.028	17	392.48	10.379	17	1	1	1
<i>Phalacrocorax carbo</i>				11.06	0.237	6	2013.33	153.094	6	3	1	3
<i>Phasianus colchicus</i>				4.12	0.059	29	1438.69	33.356	29	2	1	1
<i>Phoenicurus phoenicurus</i>	0.35	0.017	6	0.54	0.033	13	15.78	1.076	13	2	1	1

<i>Phylloscopus collybita</i>	0.17	0.014	6	0.38	0.019	11	8.02	0.223	11	2	1	1
<i>Phylloscopus trochilus</i>	0.16		1	0.31	0.028	6	9.92	0.596	6	2	1	1
<i>Pica pica</i>	2.47	0.031	4	5.34	0.143	30	206.13	5.390	30	2	1	1
<i>Picoides major</i>	1.04	0.018	10	2.59	0.059	28	77.18	1.288	32	2	1	1
<i>Picus viridis</i>	1.81	0.028	3	4.35	0.136	7	182.26	5.576	7	2	1	1
<i>Pitangus sulphuratus</i>	1.41	0.064	3	1.32	0.134	3	70.20	7.766	3	3	1	1
<i>Pitta erythrogaster</i>				0.95	0.250	2	48.35	1.350	2	2	1	1
<i>Pitta guajana</i>	1.91	0.026	4	1.42	0.069	5	69.51	6.765	5	2	1	1
<i>Pitta sordida</i>	1.51	0.035	3	1.25	0.032	5	51.51	5.883	4	2	1	1
<i>Platycercus caledonicus</i>	1.11	0.025	5	3.25	0.132	4	94.56	7.468	5	1	1	1
<i>Platysteira cyanea</i>	0.46	0.015	8	0.60	0.005	2	11.84	0.499	8	2	1	1
<i>Pluvialis apricaria</i>	3.18		1	2.09	0.064	15	193.51	8.733	15	2	1	1
<i>Pluvialis dominica</i>	2.38	0.019	2				118.00		1	2	1	1
<i>Pluvialis squatarola</i>	3.35		1	2.23	0.056	8	205.38	14.606	8	2	1	1
<i>Podiceps cristatus</i>				3.55	0.159	7	941.23	33.126	7	3	1	3
<i>Poicephalus meyeri</i>	1.17		1	4.00	0.204	4	92.95	9.175	4	1	1	1
<i>Polioptila dumicola</i>	0.21	0.025	2	0.43		1	7.60	0.500	2	2	1	1
<i>Prunella modularis</i>	0.36	0.019	6	0.71	0.028	14	20.41	0.411	14	2	1	1
<i>Psilopogon pyrolophus</i>	1.76		1	2.14	0.078	8	113.00	7.130	8	1	1	1
<i>Pteroglossus aracari</i>	3.90	0.032	3	3.45	0.087	3	267.17	5.674	3	1	1	1
<i>Pyrenestes sanguineus</i>	0.38	0.022	3	0.97	0.005	2	14.27	0.897	3	1	1	1
<i>Rallus aquaticus</i>	0.76	0.050	2	1.62	0.043	7	121.83	5.000	6	2	1	2
<i>Regulus regulus</i>	0.15	0.012	5	0.38	0.010	34	5.70	0.113	34	2	1	1
<i>Rostratula benghalensis</i>	1.59		1				178.00		1	2	2	2
<i>Saxicola decotiae</i>	0.41		1				16.47	0.045	2	2	1	1
<i>Scolopax rusticola</i>	3.11	0.022	2	2.47	0.055	20	315.60	7.612	21	2	2	1
<i>Serinus burtoni</i>	0.38	0.017	2	1.21	0.040	2	29.60	3.800	2	1	1	1
<i>Sitta europaea</i>				1.11	0.024	7	23.03	0.473	7	2	1	1
<i>Somateria mollissima</i>				7.92	0.188	13	2233.08	88.552	13	2	1	3
<i>Spermophaga haematina</i>	0.39	0.017	3	0.91		1	16.87	0.728	3	1	1	1
<i>Streptopelia decaocto</i>	1.26		1	1.56	0.061	3	175.53	25.093	3	1	1	1
<i>Strix aluco</i>	14.07	0.172	2	9.36	0.176	37	460.88	12.957	37	3	3	1

<i>Sturnus vulgaris</i>	0.53	0.040	4	2.24	0.536	14	109.40	36.271	14	2	1	1
<i>Sylvia atricapilla</i>	0.35	0.012	9	0.67	0.019	15	19.37	0.852	14	2	1	1
<i>Sylvia borin</i>	0.35	0.028	2	0.62	0.023	12	18.22	0.587	12	2	1	1
<i>Sylvia communis</i>	0.27	0.015	3	0.56	0.033	11	14.09	0.412	11	2	1	1
<i>Sylvia curruca</i>	0.24	0.010	3	0.53	0.026	10	12.82	0.508	10	2	1	1
<i>Sylvia hortensis</i>	0.40	0.059	2	0.79	0.110	2	22.25	1.350	2	2	1	1
<i>Sylvia melanocephala</i>	0.25	0.008	5	0.53	0.020	6	10.98	0.364	6	2	1	1
<i>Tachybaptus ruficollis</i>				1.62	0.105	3	138.40	5.454	3	3	1	3
<i>Tetrao urogallis</i>				5.46	0.260	4	3412.50	760.585	4	1	1	1
<i>Thraupis palmarum</i>	0.51	0.016	2	0.98	0.033	5	34.49	0.862	5	1	1	1
<i>Trichoglossus haematodus</i>	0.92	0.018	3	3.51	0.120	7	114.41	6.187	7	1	1	1
<i>Tringa nebularia</i>	1.63	0.037	3	1.62	0.047	14	152.52	3.647	13	2	1	2
<i>Tringa robusta</i>	1.17	0.016	2	1.60	0.220	2	114.75	24.450	2	2	2	1
<i>Tringa totanus</i>				1.39	0.054	12	104.25	4.438	12	2	2	1
<i>Troglodytes aedon</i>	0.29		1	0.53	0.075	2	12.15	0.050	2	2	1	1
<i>Troglodytes troglodytes</i>	0.20	0.020	5	0.51	0.019	19	9.27	0.344	19	2	1	1
<i>Turdus merula</i>	1.16	0.012	13	1.92	0.029	55	98.17	1.716	55	2	1	1
<i>Turdus philomelos</i>	1.12	0.018	11	1.59	0.022	54	69.64	1.164	55	2	1	1
<i>Turdus pilaris</i>	1.25	0.008	3	1.85	0.029	10	102.20	3.544	10	2	1	1
<i>Tyto alba</i>	3.84	0.042	5	5.83	0.130	19	277.51	8.404	19	3	3	1
<i>Tyto guttata</i>	3.85	0.031	3	5.97	0.397	3	263.50	11.730	3	3	3	1
<i>Upupa epops</i>	0.69	0.028	3	1.27	0.054	4	38.84	2.057	4	2	1	1
<i>Uria aalge</i>	3.96		1	4.64	0.136	5	802.50	128.965	5	3	1	3
<i>Vanellus vanellus</i>	2.58	0.022	4	2.16	0.054	13	216.25	10.537	12	2	1	1
<i>Zonotrichia capensis</i>	0.42	0.050	2	0.80	0.075	2	20.30	2.380	3	1	1	1
