

**Supplemental Table 1. Visual and Ecological Comparative Mammalian Dataset.**

Species	AD	VA	BM	MT	MRS	AP	D <sup>1</sup>	VA	Sources AD, BM	D,AP	MRS
<b><u>Artiodactyla</u></b>											
<i>Bos taurus</i>	30.78	10.31	679.05	A	60	D	H	this study: [1,2]	[2]	[3,4]	[8]
<i>Camelus bactrianus</i>	40	10	400	B				[5]	[6,7]	[3,6]	
<i>Camelus dromedarius</i>	33	10.4	415	A				[5]	[5,9]		
<i>Capra hircus</i>	25.84	8.43	27.66	A				this study: [10,11]	[2]		
<i>Dama dama</i>	34	18.48	80	A		C	H	this study: [6,12]	[6,13]		[3,4]
<i>Giraffa camelopardalis</i>	42.26	25.46	1000	A				[14]	[13]		
<i>Ovis aries</i>	26.11	5.61	52.1	B				[15]	[2]		
<i>Sus scrofa</i>	24.8	9.92	86.78	A				this study: [16,17]	[2,9]		
<b><u>Carnivora</u></b>											
<i>Acinonyx jubatus</i>	36.7	23.02	45.6	A				this study: [6,12]	[6,9]		[23,24]
<i>Canis lupus</i>	22.5	14.57	31.65	A				this study: [18,19]	[6,9]		
<i>Crocuta crocuta</i>	28.68	8.4	64.23	A				[20]	[2,9]		
<i>Enhydra lutris</i>	14	4.2	27.05	A				[21]	[2,9]		
<i>Felis catus</i>	21.94	8.85	3.05	B		C	P	[22]	[2]		[3,28]
<i>Lynx lynx</i>	26.82	8	17.8					[25]	[2,9]		
<i>Mustela nivalis</i>	5.4	2.2	0.08					[26]	[2,9]		
<i>Mustela putorius furo</i>	7.5	3.57	0.83	B				[27]	[2,9]		
<i>Odobenus rosmarus</i>	24.96	3.8	1060	A		D	P	[29]	[2,9]		[6,31]
<i>Suricata suricatta</i>	10.5	6.3	0.62	B				[30]	[6,9]		
<b><u>Chiroptera</u></b>											
<i>Artibeus cinereus</i>	4.4	1.4	0.07	A		N		[32]	[9,32]		[35,36]
<i>Artibeus jamaicensis</i>	3.9	0.167	0.05	B				[33]	[9,34]		
<i>Carollia perspicillata</i>	2.62	0.94	0.02	A				[37]	[9,38]		
<i>Desmodus rotundus</i>	2.5	0.625	0.03	B				[39]	[9,34]	[36,40]	
<i>Eptesicus fuscus</i>	1.481	0.5	0.03	B		N		[41]	[9,42]	[43]	
<i>Macroderma gigas</i>	7	1.9	0.15	A				[32]	[9,32]		
<i>Megaderma lyra</i>	4.2	1.5	0.05	A				[32]	[9,32]		

<i>Myotis dabentonii</i>	1.25	0.1	0.007	B		N		[34]	[9,34]	[44]
<i>Myotis mystacinus</i>	0.95	0.1	0.004	B		N		[34]	[9,34]	
<i>Nyctophilus gouldi</i>	1.9	0.6	0.01	A				[32]	[9,32]	
<i>Phyllostomus hastatus</i>	3.94	0.167	0.11	B		N		[33]	[9,38]	[45]
<i>Plecotus auritus</i>	1.8	1	0.007	B		N		[34]	[9,34]	[3]
<i>Pteropus giganteus</i>	9.65	1.7	0.90	B		N	H	[46]	[2,9]	[3]
<i>Pteropus poliocephalus</i>	13.3	5.5	0.68	A				[32]	[2,9]	
<i>Pteropus scapulatus</i>	11	4	0.36	A				[32]	[2,9]	
<i>Rhinolophus rouxi</i>	1.8	0.4	0.014	A				[32]	[9,34]	
<i>Rousettus madagascariensis</i>	5.72	3	0.07	A				[32]	[2,47]	
<i>Taphozous georgianus</i>	3.7	1.3	0.03	A				[32]	[9,32]	
<b><u>Dasyuromorphia</u></b>										
<i>Dasyurus hallucatus</i>	10	2.8	0.40	B		N	P	[48]	[9,48]	[3,49]
<i>Myrmecobius fasciatus</i>	11.70	5.2	0.46	B	33	D		[50]	[9,50]	[51,52] [53]
<i>Sarcophilus harrisii</i>	14.5	4.75	6.37	A				this study: [6,54]	[6,9]	
<i>Sminthopsis crassicaudata</i>	5.088	2.36	0.015	B	10.9	C	P	[55]	[9,55]	[3,55] [53]
<b><u>Didelphimorphia</u></b>										
<i>Didelphis marsupialis</i>	8.7	1.25	1.48	A				[56]	[6,9]	
<i>Didelphis virginiana</i>	10	2.49	2.19	A				this study: [6,57]	[2,9]	
<b><u>Diprotodontia</u></b>										
<i>Macropus eugenii</i>	16.18	2.7	6.50	B	40	C	H	[58]	[9,58]**	[3] [53]
<i>Macropus fuliginosus</i>	23.1	11.23	62.63	A				this study: [6,59]	[6,9]	
<i>Phascolarctos cinereus</i>	12.6	2.4	6.96	A				[60]	[9,61]	
<i>Setonyx brachyurus</i>	10.4	4.00	3.25	A				this study: [55,62]	[9,62]	
<i>Tarsipes rostratus</i>	1.6	0.63	0.009	B		C	H	[63]	[9,64]	[3,65]
<i>Trichosurus vulpecula</i>	13.7	4.8	2.93	A				[66]	[6,9]	
<b><u>Lagomorpha</u></b>										
<i>Oryctolagus cuniculus</i>	18.04	3	1.52	B	56	C	H	[67]	[6,9]	[3,68] [69]
<b><u>Monotremata</u></b>										
<i>Tachyglossus aculeatus</i>	8	1.69	3.55	A				[2,70]	[2,9]	

**Perissodactyla**

<i>Diceros bicornis</i>	27.6	6	985	A				[71]	[6,9]		
<i>Equus caballus</i>	42	23.3	350	B	70	C	H	[72]	[6,13]	[6,73]	[69]

**Primates- Haplorhines\***

<i>Alouatta caraya</i>	16.2	59.61	5.63	A				this study: [6,74] <sup>2</sup>	[6,9]		
<i>Aotus azarae</i>	19.9	8.3	1.06	A				[75]	[6,9]		
<i>Aotus trivirgatus</i>	19.9	10	0.85	B				[76]	[6,9]		
<i>Callithrix jacchus</i>	11.3	30	0.31	A				[77]	[6,9]		
<i>Cebus apella</i>	14.1	54.75	2.77	A				[78]	[6,9]		
<i>Chlorocebus aethiops</i>	21.5	55.23	4.17	A				this study: [79,80] <sup>2</sup>	[9,80]		
<i>Homo sapiens</i>	24	64	60.21	B				[32]	[38,81]		
<i>Macaca fascicularis</i>	18.4	46	4.30	B				[82]	[6,9]		
<i>Macaca mulatta</i>	20	53.6	5.30	B				[83,84]	[6,9]		
<i>Macaca nemestrina</i>	19.9	46	7.47	B				[82]	[6,9]		
<i>Pan troglodytes</i>	20.9	64.28	49.21	B				[85]	[6,9]		
<i>Saguinus midas</i>	12.2	24.87	0.43	A				this study: [6,74] <sup>2</sup>	[6,9]		
<i>Saimiri sciureus</i>	15	40.5	0.79	B				[83]	[6,9]		
<i>Tarsius syrichta</i>	17	8.89	0.10	A				[86]	[6,9]		

**Primates- Strepsirrhines**

<i>Cheirogaleus medius</i>	10.3	2.84	0.18	A				[86]	[6,9]		
<i>Eulemur macaco</i>	15.3	5.14	2.40	B		C	H	[86]	[6,87]	[87]	
<i>Galago senegalensis</i>	12.9	6.7	0.18	B		N	P	[88]	[6,9]	[89]	
<i>Lemur catta</i>	15.6	6.7	1.96	B		D	H	[90]	[6,9]	[87]	
<i>Microcebus murinus</i>	9.2	4.2	0.06	A				[91]	[6,9]		
<i>Otolemur crassicaudatus</i>	16.3	4.8	1.27	B		N		[92]	[6,9]	[93]	

**Proboscidea**

<i>Loxodonta africana</i>	39.6	13.16	2420	A				[94]	[6,9]		
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**Rodentia**

<i>Agouti paca</i>	18.46	2.8	8.0	A				[95]	[9,96]		
<i>Dasyprocta leporina</i>	15.68	6.21	2.61	A				[95]	[9,96]		
<i>Ellobius lutescens</i>	2.2	0.4	0.12	A				[97]	[97,98]		

<i>Ellobius talpinus</i>	2.9	0.9	0.04	A				[97]	[9,97]		
<i>Heterocephalus glaber</i>	1.6	0.44	0.06	A				[99]	[9,100]		
<i>Hydrochoerus hydrochaeris</i>	21.04	5.8	39.13	A				[95]	[9,95]		
<i>Lemmus lemmus</i>	2.40	0.83	0.05	B		C	H	[101]	[2,9]	[3]	
<i>Meriones unguiculatus</i>	6.11	1.8	0.06	B	14.5	C	H	[102,103]	[9,104]	[3,105]	[106]
<i>Mesocricetus auratus</i>	6.32	0.5	0.10	B				[107]	[9,108]		
<i>Mus musculus</i>	5.28	0.5	0.02	B	13.1	N		[109]	[2,9]	[3]	[110]
<i>Peromyscus maniculatus</i>	4.9	0.56	0.03	B	15.9	N		[111]	[6,13]	[6,112]	[113]
<i>Rattus norvegicus</i>	5.58	1.6	0.29	B	9.7	N		[114]	[2,9]	[3,6]	[69]
<i>Sciurus carolinensis</i>	11.8	3.9	0.49	B	27	D		[115]	[6,9]	[6,116]	[69]
<i>Sciurus niger</i>	12	3.9	0.76	B	24	D		[115]	[6,9]	[6,117]	[13]
<i>Spermophilus beecheyi</i>	9.54	4	0.60	B		D		[112]	[9,12]	[3]	
<b><u>Scandentia</u></b>											
<i>Tupaia belangeri</i>	7.60	2.4	0.16	B		D		[119]	[6,9]	[120]	
<i>Tupaia glis</i>	8.7	4.7	0.13	B		D		[121]	[6,9]	[3,120]	
<b><u>Xenarthra</u></b>											
<i>Choloepus didactylus</i>	10.2	1.54	4.66	A				this study: [6,122]	[6,9]		

Abbreviations: eye length/axial diameter (AD, mm); visual acuity (VA, cpd); body mass (BM, kg); measurement type (MT)- anatomical (A), behavioral (B); maximum running speed (MRS, kph); activity pattern (AP)- diurnal (D), cathemeral/arrhythmic (C), nocturnal (N); Diet - herbivorous (H), active predator (P).

<sup>1</sup>Species were categorized as “active predators” if they were reported in the literature as actively catching moving prey.

<sup>2</sup> for haplorhine primates, which exhibit no retinal summation, acuity was calculated from peak retinal cone cell density rather than ganglion cell density.

\* All haplorhines were excluded from ecological comparisons.

\*\* eye length estimated from anatomically measured retinal magnification factor using Pettigrew et al.’s [32] formula.

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