Journal of Vertebrate Paleontology

Supplementary data

First virtual endocasts of a fossil rodent: *Ischyromys typus* (Ischyromyidae) and brain evolution in rodents

ORNELLA C. BERTRAND*, and MARY T. SILCOX

Department of Anthropology, University of Toronto Scarborough —
Toronto, Ontario, M1C 1A4, Canada,
ornella.bertrand@mail.utoronto.ca; msilcox@utsc.utoronto.ca

*Corresponding author

RH: BERTRAND AND SILCOX—ENDOCASTS OF *ISCHYROMYS TYPUS*

TABLE S1. Linear measurements, volumes and surface areas taken on the different endocasts of *Ischyromys typus* (ROMV 1007; AMNH 12252; AMNH F: AM) and *Sciurus carolinensis* (AMNH 258346) and comparisons with virtual endocasts of plesiadapiforms and apatemyids (Gingerich and Gunnell, 2005; Silcox et al., 2009; 2010; 2011; Orliac et al., 2014) and brains of two modern rodents (Pirlot and Kamiya, 1982). Different ratios based on the endocranial measurements are also presented in the table. Cheek-teeth area was used to estimate body mass for the rodents. Abbreviation: BM, body mass. The total endocast surface area and total endocast volume of AMNH 12252 are estimated values (see Table 2S). The total endocast volume of *Plesiadapis tricuspidens* and the percentage of the olfactory bulbs of *P. cookei* are estimations after correcting for deformation (Orliac et al., 2014).

		<i>Ischyromys typus</i>	<i>Ischyromys typus</i>	<i>Ischyromys typus</i>	<i>Sciurus carolinensis</i>	<i>Microsyops annectens</i>	<i>Ignacius graybullianus</i>	<i>Plesiadapis cookei</i>	<i>Plesiadapis tricuspidens</i>	<i>Labidolemur kayi</i>	<i>Glaucomys</i>	<i>Iomys</i>
Abbreviation		ROMV 1007	AMNH 12252	AMNH F:AM 144638	AMNH 258346	UW 12362	USNM 421608	UM 87990	MNHN CR 125	USNM 530221 /USNM 530208	Pirlot and Kamiya, 1982	Pirlot and Kamiya, 1982
Measurements (mm)												
Total endocast length	TL	40.55	39.51	40.43	36.91	41.25	30.79	42.00	43.50	17.51	-	-
Olfactory bulbs length	OL	7.24	5.99	7.14	5.41	8.00	6.28	10.00	9.70	5.42	-	-
Olfactory bulbs width	OW	7.12	7.29	7.73	9.77	5.00	3.94	5.00	-	3.25	-	-
Olfactory bulbs height	OH	5.75	6.43	6.72	7.87	-	-	-	-	-	-	-
Cerebrum maximal length	CRML	20.96	18.77	20.43	26.80	-	-	-	18.20	-	-	-
Cerebrum maximal width	CRMW	23.58	20.06	23.72	26.11	24.00	19.44	22.00	22.00	10.47	-	-
Cerebrum maximal height	CRMH	11.98	13.29	14.23	18.22	-	-	-	-	-	-	-
Cerebellum width (without paraflocculi)	CLW	19.98	-	21.44	19.90	23.90	15.60	-	19.60	-	-	-
Cerebellum maximal length	CLML	9.36	9.02	11.22	4.67	11.90	9.40	-	7.50	-	-	-
Ratios linear measurements (%)												
OL/TL		17.85	15.16	17.66	14.66	19.39	20.40	23.81	22.30	30.95	-	-
CRML/TL		51.69	47.51	50.53	72.61	-	-	-	-	-	-	-
CLML/TL		23.08	22.83	27.75	12.65	28.85	30.53	-	17.24	-	-	-
CLW/CRMW		0.85	-	0.90	0.76	-	-	-	1.12	-	-	-
OW/CRMW		30.20	36.34	32.59	37.42	20.83	20.24	22.73	-	31.04	-	-
OW/CLW		35.64	-	36.05	49.10	-	-	-	-	-	-	-
OL/CRMH		60.43	45.07	50.18	29.69	-	-	-	-	-	-	-
Surface areas (mm ²) and volumes (mm ³)												
Total endocast surface area	TS	2727.54	3105.22	2673.32	2720.59	2959.19	2230.95	-	2960.00	-	-	-
Surface of the olfactory bulbs	OS	176.40	188.826	206.49	193.01	-	-	-	-	-	-	-
Total surface without the olfactory bulbs	TS-OS	2551.15	2916.39	2466.83	2527.58	-	-	-	-	-	-	-
Neocortical surface area (all)	NS	578.69	615.73	625.75	990.64	-	-	-	-	-	-	-
Neocortical surface area (both sides)	NS2	560.58	597.95	609.84	969.85	-	-	-	-	-	-	-
Neocortical surface area (one side)	NS1 x 2	577.77	572.78	615.72	963.48	632.56	439.91	-	590.00	-	-	-
Total endocast volume	TV	5578.07	5934.55	7276.91	8052.59	5900.66	2141.29	5000.00	5210.00	524.13	899.00	2095.00

Table S1. (Continued)

		<i>Ischyromys typus</i>	<i>Ischyromys typus</i>	<i>Ischyromys typus</i>	<i>Sciurus carolinensis</i>	<i>Microsyops annectens</i>	<i>Ignacius graybullianus</i>	<i>Plesiadapis cookei</i>	<i>Plesiadapis tricuspidens</i>	<i>Labidolemur kayi</i>	<i>Glaucomys</i>	<i>Iomys</i>
	Abbreviation	ROMV 1007	AMNH 12252	AMNH F:AM 144638	AMNH 258346	UW 12362	USNM 421608	UM 87990	MNHN CR 125	USNM 530221 /USNM 530208	Pirlot and Kamiya, 1982	Pirlot and Kamiya, 1982
Surface areas (mm ²) and volumes (mm ³)												
	OV	180.09	218.46	229.12	255.92	300.55	118.31	-	136.00	68.22	24.00	44.00
	PVR	45.57	-	57.28	81.91	-	-	-	-	-	-	-
	PVL	45.55	-	59.30	81.35	-	-	-	-	-	-	-
	PV2	91.12	-	116.58	163.26	-	-	-	-	-	-	-
Ratios surface areas and volumes (%)												
	NS/TS	21.22	19.83	23.41	36.41	-	-	-	-	-	-	-
	NS2/TS	20.55	19.26	22.81	35.65	-	-	-	-	-	-	-
	NS1*2/TS	21.18	18.45	23.03	35.41	21.30	19.72	-	19.90	-	-	-
	NS1*2/(TS-OS)	22.65	19.64	24.96	38.12	24.30	21.80	-	21.80	-	-	-
	OV/TV	3.23	3.68	3.15	3.18	5.09	5.53	7.80	4.90	13.02	2.67	2.10
	PV2/TV	1.63	-	1.60	2.03	-	-	-	-	-	-	-
Ratios body mass (g)												
	(((OV/1.05)/1000)/(BM)*100	0.01	0.02	0.02	0.04	0.02	0.04	-	0.00	0.09	0.05	0.04
	(((TV/1.05)/1000)/(BM)*100	0.38	0.52	0.62	1.29	0.33	0.81	0.22	0.08	0.67	1.71	1.68
	(((PV2/1.05)/1000)/(BM)*100	0.01	-	0.01	0.03	-	-	-	-	-	-	-

TABLE S2. Results of the analysis when cropping ROMV 1007 in the same areas that are missing in AMNH 12252. Cropped version of the virtual endocast of ROMV 1007 is compared to the original ROMV 1007 and AMNH 12252; Cheek-teeth area was used to estimate body mass. Abbreviation: BM, body mass. The estimated values for the total endocast surface area and the total endocast volume of AMNH 12252 were used in the calculation of the neocortical surface area and the olfactory bulb volume percentages, the encephalization quotient as well as the ratio of the total endocast volume to body mass of AMNH 12252 (Tables 1, 2).

		<i>Ischyromys typus</i>	<i>Ischyromys typus</i>	<i>Ischyromys typus</i>
Abbreviation		ROMV 1007	AMNH 12252	AMNH 12252 (estimated)
Surface areas (mm ²) and volumes (mm ³)				
Total endocast surface area	TS	2727.54	2440.51	3105.22
Surface of the olfactory bulbs	OS	176.40	188.83	188.83
Total surface without the olfactory bulbs	TS-OS	2551.15	2251.68	2916.39
Neocortical surface area (all)	NS	578.69	615.73	615.73
Neocortical surface area (both sides)	NS2	560.58	597.95	597.95
Neocortical surface area (one side)	NS1 x 2	577.77	572.78	572.78
Total endocast volume	TV	5578.07	5759.59	5934.55
Olfactory bulbs volume	OV	180.09	218.46	218.46
Ratios surface areas and volumes (%)				
NS/TS		21.22	25.23	19.83
NS2/TS		20.55	24.50	19.26
NS1*2/TS		21.18	23.47	18.45
NS1*2/(TS-OS)		22.65	25.44	19.64
OV/TV		3.23	3.79	3.68
Ratio body mass (g)				-
(((TV/1.05)/1000)/BM)*100		0.38	0.56	0.52

TABLE S3. Sample of living rodents with associated brain and body masses from the literature belonging to different rodent suborders. If data were not available the symbol (-) was used; Endocranial volumes were converted into brain masses in order to calculate the different EQ values (volumes before conversion are indicated in the table). For each taxon, the sex, body mass, brain mass, EQ, and reference are indicated when available. The datasets from Mace et al. (1981) as well as Bernard and Nurton (1993) were not included in the present analysis since body and brain masses were not associated for each specimen and in those analyses, and the body masses were taken from the literature. Brain volume was converted to brain mass for three samples (Roth and Thorington, 1982; Hafner and Hafner, 1984; Iwaniuk, 2001) using the conversion formula of Hofman (1983).

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Myomorpha												
Zapodidae	1	<i>Zapus hudsonicus</i>	F	3	19.30	0.70	0.80	1.41	1.04	Crile and Quiring, 1940	mass	
	2	<i>Zapus hudsonicus</i>	M	1	15.20	0.71	0.95	1.70	1.23	Crile and Quiring, 1940	mass	
Dipodidae	3	<i>Dipus hirtipes</i>	-	-	73.00	1.85	0.87	1.40	1.18	Brummelkamp, 1939	mass	
	4	<i>Jaculus orientalis</i>	-	-	140.00	2.64	0.80	1.23	1.11	Compoint-Monmignaut, 1973	mass	
	5	<i>Jaculus orientalis</i>	-	1	98.00	2.50	0.97	1.52	1.32	Warncke, 1908	mass	
	6	<i>Allactaga sibirica</i>	F	1	106.00	2.00	0.73	1.15	1.01	Brauer and Shauber, 1970	mass	
	7	<i>Alactaga saliens (Allactaga sibirica)</i>	-	1	193.00	3.50	0.86	1.29	1.20	Brauer and Shauber, 1970	mass	
	8	<i>Allactaga elater</i>	-	1	80.00	1.90	0.84	1.34	1.14	Brauer and Shauber, 1970	mass	
Muridae	9	<i>Lemniscomys striatus</i>	-	2	53.30	1.02	0.59	0.97	0.80	Stephan and Dieterlen, 1982	mass	
	10	<i>Lemniscomys striatus</i>	-	10	53.00	1.01	0.59	0.96	0.79	Stephan and Dieterlen, 1982	mass	
	11	<i>Lemniscomys striatus</i>	-	12	53.40	1.01	0.59	0.97	0.79	Stephan and Dieterlen, 1982	mass	
	12	<i>Lemniscomys striatus</i>	-	-	57.00	0.99	0.55	0.90	0.74	Compoint-Monmignaut, 1973	mass	
	13	<i>Rattus rattus</i>	F	-	160.00	2.24	0.62	0.95	0.86	Pilleri et al., 1984	mass	
	14	<i>Rattus rattus</i>	-	-	200.00	1.59	0.38	0.57	0.53	Brummelkamp, 1939	mass	
	15	<i>Rattus rattus</i>	-	-	150.00	1.92	0.56	0.85	0.77	Compoint-Monmignaut, 1973	mass	
	16	<i>Rattus rattus rattus</i>	-	-	217.00	1.68	0.38	0.57	0.53	Mangold-Wirz, 1966	mass	
	17	<i>Rattus rattus alexandrinus</i>	-	-	150.00	1.57	0.46	0.70	0.63	Mangold-Wirz, 1966	mass	
	18	<i>Rattus norvegicus</i>	-	10	274.00	2.18	0.42	0.62	0.60	Nikitenko, 1966	mass	
	19	<i>Rattus norvegicus</i>	M	2	278.00	2.30	0.44	0.65	0.62	Crile and Quiring, 1940	mass	
	20	<i>Rattus norvegicus</i>	F	1	197.00	1.61	0.39	0.58	0.54	Crile and Quiring, 1940	mass	
	21	<i>Rattus norvegicus</i>	-	354	291.00	2.27	0.42	0.62	0.60	Stephan and Dieterlen, 1982	mass	
	22	<i>Rattus norvegicus</i>	-	-	305.00	2.36	0.43	0.62	0.60	Mangold-Wirz, 1966	mass	
	23	<i>Rattus norvegicus</i>	-	-	448.00	2.36	0.33	0.47	0.47	Brummelkamp, 1939	mass	
	24	<i>Rattus norvegicus norvegicus</i>	M	1	202.00	2.60	0.62	0.93	0.86	Brauer and Shauber, 1970	mass	
	25	<i>Rattus norvegicus domestica</i>	F	1	324.00	2.70	0.47	0.68	0.66	Brauer and Shauber, 1970	mass	
	26	<i>Praomys natalensis</i>	-	10	63.00	0.90	0.47	0.76	0.63	Stephan and Dieterlen, 1982	mass	
	27	<i>Praomys jacobsoni</i>	-	-	49.00	0.87	0.53	0.88	0.72	Compoint-Monmignaut, 1973	mass	
	28	<i>Mus musculus</i>	-	312	18.00	0.43	0.52	0.92	0.67	Stephan and Dieterlen, 1982	mass	
	29	<i>Mus musculus</i>	-	1	24.00	0.45	0.45	0.77	0.59	Sacher and Staffeldt, 1974	mass	
	30	<i>Mus musculus</i>	-	-	20.85	0.43	0.47	0.82	0.61	Brummelkamp, 1939	mass	
	31	<i>Mus musculus</i>	-	-	16.00	0.36	0.47	0.84	0.61	Brummelkamp, 1939	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Myomorpha	Muridae	32	<i>Mus musculus</i>	-	-	24.32	0.48	0.47	0.81	0.61	Brummelkamp, 1939	mass
		33	<i>Mus musculus musculus</i>	F	1	20.00	0.50	0.56	0.99	0.73	Brauer and Shauber, 1970	mass
		34	<i>Mus musculus</i>	-	-	24.00	0.50	0.50	0.86	0.65	Mangold-Wirz, 1966	mass
		35	<i>Mus musculus domesticus</i>	-	-	12.00	0.36	0.57	1.04	0.73	Compoint-Monmignaut, 1973	mass
		36	<i>Mus triton</i>	-	-	8.40	0.36	0.72	1.35	0.92	Compoint-Monmignaut, 1973	mass
		37	<i>Mus minutoides</i>	-	-	5.00	0.26	0.74	1.43	0.93	Compoint-Monmignaut, 1973	mass
		38	<i>Mus wagneri</i>	-	-	18.92	0.42	0.49	0.87	0.64	Brummelkamp, 1939	mass
		39	<i>Thamnomys venustus</i>	-	9	82.50	1.29	0.56	0.89	0.76	Stephan and Dieterlen, 1982	mass
		40	<i>Thamnomys venustus</i>	-	8	82.50	1.28	0.56	0.89	0.76	Stephan and Dieterlen, 1982	mass
		41	<i>Thamnomys venustus</i>	-	1	82.50	1.35	0.58	0.93	0.80	Stephan and Dieterlen, 1982	mass
		42	<i>Grammomys dolichurus</i>	-	-	45.00	1.18	0.77	1.28	1.03	Compoint-Monmignaut, 1973	mass
		43	<i>Oenomys hypoxanthus</i>	-	3	92.00	1.15	0.46	0.73	0.63	Stephan and Dieterlen, 1982	mass
		44	<i>Oenomys hypoxanthus</i>	-	8	92.00	1.17	0.47	0.74	0.64	Stephan and Dieterlen, 1982	mass
		45	<i>Oenomys hypoxanthus</i>	-	11	92.00	1.16	0.47	0.74	0.64	Stephan and Dieterlen, 1982	mass
		46	<i>Oenomys hypoxanthus</i>	-	-	178.00	1.48	0.38	0.58	0.53	Compoint-Monmignaut, 1973	mass
		47	<i>Pelomys fallax</i>	-	1	121.00	1.46	0.49	0.76	0.67	Stephan and Dieterlen, 1982	mass
		48	<i>Pelomys fallax</i>	-	8	110.00	1.41	0.50	0.78	0.69	Stephan and Dieterlen, 1982	mass
		49	<i>Pelomys fallax</i>	-	9	111.00	1.41	0.50	0.78	0.69	Stephan and Dieterlen, 1982	mass
		50	<i>Pelomys campanae</i>	-	-	91.00	1.23	0.50	0.79	0.68	Compoint-Monmignaut, 1973	mass
		51	<i>Stochomys longicaudatus</i>	-	-	65.00	1.27	0.65	1.05	0.87	Compoint-Monmignaut, 1973	mass
		52	<i>Lophuromys sikapusi</i>	-	5	63.50	1.20	0.62	1.01	0.84	Stephan and Dieterlen, 1982	mass
		53	<i>Lophuromys sikapusi</i>	-	-	70.00	1.13	0.55	0.88	0.74	Compoint-Monmignaut, 1973	mass
		54	<i>Colomys goslingi</i>	-	10	58.20	1.37	0.75	1.23	1.01	Stephan and Dieterlen, 1982	mass
		55	<i>Micromys minutus</i>	-	3	5.50	0.27	0.71	1.37	0.90	Stephan and Dieterlen, 1982	mass
		56	<i>Micromys minutus</i>	-	10	6.10	0.28	0.70	1.34	0.89	Stephan and Dieterlen, 1982	mass
		57	<i>Micromys minutus</i>	-	13	5.95	0.28	0.70	1.34	0.89	Stephan and Dieterlen, 1982	mass
		58	<i>Apodemus flavicollis</i>	-	10	30.00	0.75	0.64	1.09	0.85	Stephan and Dieterlen, 1982	mass
		59	<i>Apodemus sylvaticus</i>	-	182	19.40	0.59	0.67	1.19	0.88	Stephan and Dieterlen, 1982	mass
		60	<i>Apodemus sylvaticus</i>	-	-	22.00	0.56	0.59	1.04	0.78	Mangold-Wirz, 1966	mass
		61	<i>Apodemus sylvaticus</i>	-	-	21.60	0.59	0.63	1.10	0.82	Brummelkamp, 1939	mass
		62	<i>Apodemus sylvaticus syvaticus</i>	M	1	19.00	0.60	0.70	1.23	0.91	Brauer and Shauber, 1970	mass
		63	<i>Apodemus agrarius agrarius</i>	F	1	26.20	0.62	0.58	1.00	0.76	Brauer and Shauber, 1970	mass

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Myomorpha												
Muridae	64	<i>Apodemus agrarius</i>	-	-	28.50	0.63	0.56	0.96	0.74	Mangold-Wirz, 1966	mass	
	65	<i>Apodemus flavicollis flavicollis</i>	M	1	33.00	0.80	0.64	1.09	0.85	Brauer and Shauber, 1970	mass	
	66	<i>Dasymys incomptus</i>	-	8	102.50	1.57	0.59	0.93	0.81	Stephan and Dieterlen, 1982	mass	
	67	<i>Hybomys univittatus</i>	-	10	56.80	1.15	0.64	1.05	0.86	Stephan and Dieterlen, 1982	mass	
	68	<i>Leggada minutoides</i>	-	8	10.40	0.33	0.57	1.05	0.73	Stephan and Dieterlen, 1982	mass	
	69	<i>Malacomys longipes</i>	-	9	98.00	1.29	0.50	0.78	0.68	Stephan and Dieterlen, 1982	mass	
	70	<i>Acomys dimidiatus</i>	-	28	50.50	0.88	0.53	0.88	0.72	Stephan and Dieterlen, 1982	mass	
	71	<i>Acomys cahirinus dimidiatus</i>	F	1	76.00	0.97	0.44	0.71	0.60	Brauer and Shauber, 1970	mass	
	72	<i>Desmodillus auricularis</i>	M	1	60.00	1.12	0.60	0.98	0.81	Brauer and Shauber, 1970	mass	
	73	<i>Peromyscus gossypinus</i>	-	-	27.20	0.68	0.62	1.07	0.82	Sacher and Staffeldt, 1974	mass	
Cricetidae	74	<i>Peromyscus leucopus</i>	-	-	25.50	0.63	0.60	1.04	0.79	Sacher and Staffeldt, 1974	mass	
	75	<i>Peromyscus leucopus</i>	F	13	19.70	0.64	0.72	1.27	0.94	King, 1965	mass	
	76	<i>Peromyscus leucopus</i>	M	13	22.90	0.62	0.64	1.11	0.84	King, 1965	mass	
	77	<i>Peromyscus maniculatus bairdii</i>	F	41	16.50	0.52	0.66	1.18	0.86	King, 1965	mass	
	78	<i>Peromyscus maniculatus bairdii</i>	M	41	18.00	0.52	0.62	1.11	0.81	King, 1965	mass	
	79	<i>Peromyscus maniculatus gracilis</i>	F	60	22.10	0.69	0.72	1.26	0.95	King, 1965	mass	
	80	<i>Peromyscus maniculatus gracilis</i>	M	60	26.00	0.69	0.65	1.12	0.86	King, 1965	mass	
	81	<i>Peromyscus californicus</i>	F	11	55.00	1.03	0.59	0.96	0.79	King, 1965	mass	
	82	<i>Peromyscus californicus</i>	M	11	51.20	1.03	0.61	1.01	0.83	King, 1965	mass	
	83	<i>Peromyscus floridanus</i>	F	13	36.50	0.89	0.67	1.12	0.89	King, 1965	mass	
	84	<i>Peromyscus floridanus</i>	M	13	39.20	0.89	0.64	1.07	0.85	King, 1965	mass	
	85	<i>Peromyscus eremicus</i>	F	10	20.10	0.65	0.73	1.28	0.95	King, 1965	mass	
	86	<i>Peromyscus eremicus</i>	M	10	20.00	0.64	0.72	1.26	0.94	King, 1965	mass	
	87	<i>Peromyscus polionotus</i>	M	14	13.50	0.49	0.71	1.29	0.93	King, 1965	mass	
	88	<i>Peromyscus polionotus</i>	F	14	13.10	0.49	0.72	1.31	0.94	King, 1965	mass	
	89	<i>Sigmodon hispidus</i>	-	-	148.00	1.18	0.35	0.53	0.48	Sacher and Staffeldt, 1974	mass	
	90	<i>Cricetulus griseus</i>	-	-	36.00	0.67	0.51	0.85	0.67	Sacher and Staffeldt, 1974	mass	
	91	<i>Cricetulus griseus</i>	-	-	23.18	0.63	0.64	1.11	0.84	Brummelkamp, 1939	mass	
	92	<i>Cricetus cricetus</i>	M	1	450.00	2.85	0.40	0.56	0.57	Brauer and Shauber, 1970	mass	
	93	<i>Cricetus cricetus</i>	-	1	297.00	2.20	0.40	0.59	0.57	Warncke, 1908	mass	
	94	<i>Cricetus auratus</i>	-	-	100.00	1.40	0.53	0.84	0.73	Mangold-Wirz, 1966	mass	
	95	<i>Mesocricetus auratus</i>	-	-	125.00	1.12	0.37	0.57	0.51	Sacher and Staffeldt, 1974	mass	
	96	<i>Mesocricetus auratus</i>	F	1	87.00	1.32	0.55	0.88	0.75	Brauer and Shauber, 1970	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Myomorpha Cricetidae	97	<i>Mesocricetus brandti</i>	M	1	80.00	1.00	0.44	0.71	0.60	Brauer and Shauber, 1970	mass	
	98	<i>Dicrostonyx rubricatus</i>	M	4	52.10	0.90	0.53	0.87	0.71	Crile and Quiring, 1940	mass	
	99	<i>Macrotarsomys ingens</i>	-	1	65.00	1.70	0.86	1.40	1.17	Pilleri, 1961	mass	
	100	<i>Macrotarsomys bastardi</i>	-	1	28.50	0.80	0.71	1.21	0.93	Pilleri, 1961	mass	
	101	<i>Hypogeomys antimena</i>	-	1	875.00	8.00	0.71	0.96	1.04	Pilleri, 1961	mass	
	102	<i>Brachyuromys ramirohitra</i>	-	1	94.00	1.40	0.56	0.88	0.76	Pilleri et al., 1984	mass	
	103	<i>Lemmus trinucronatus</i>	F	4	32.00	1.13	0.92	1.57	1.22	Crile and Quiring, 1940	mass	
	104	<i>Lemmus trinucronatus</i>	M	1	48.00	1.31	0.82	1.35	1.10	Crile and Quiring, 1940	mass	
	105	<i>Myodes lemmus (Lemmus lemmus)</i>	-	1	21.00	0.70	0.76	1.33	0.99	Warncke, 1908	mass	
	106	<i>Arvicola terrestris</i>	-	3	137.80	1.53	0.47	0.72	0.65	Nikitenko, 1966	mass	
	107	<i>Arvicola terrestris</i>	M	1	131.00	1.50	0.48	0.74	0.66	Brauer and Shauber, 1970	mass	
	108	<i>Arvicola terrestris</i>	-	-	84.50	1.09	0.46	0.74	0.63	Mangold-Wirz, 1966	mass	
	109	<i>Arvicola agrestis</i>	-	-	42.50	0.90	0.61	1.02	0.81	Brummelkamp, 1939	mass	
	110	<i>Ondatra zibethicus</i>	F	1	1600.00	8.10	0.48	0.62	0.71	Pilleri et al., 1984	mass	
	111	<i>Ondatra zibethicus</i>	F	1	1032.00	5.70	0.45	0.61	0.66	Pilleri et al., 1984	mass	
	112	<i>Ondatra zibethicus</i>	M	1	900.00	5.33	0.47	0.63	0.68	Crile and Quiring, 1940	mass	
	113	<i>Ondatra zibethicus</i>	-	12	900.00	5.33	0.47	0.63	0.68	Nikitenko, 1966	mass	
	114	<i>Ondatra zibethica</i>	F	1	1500.00	4.80	0.30	0.39	0.44	Brauer and Shauber, 1970	mass	
	115	<i>Ondatra zibethica</i>	-	-	1500.00	7.60	0.47	0.61	0.70	Mangold-Wirz, 1966	mass	
	116	<i>Microtus drummondi</i>	M	67	23.70	0.66	0.66	1.15	0.87	Crile and Quiring, 1940	mass	
	117	<i>Microtus drummondi</i>	F	42	22.90	0.65	0.66	1.15	0.87	Crile and Quiring, 1940	mass	
	118	<i>Microtus pennsylvanicus</i>	F	42	25.20	0.72	0.69	1.19	0.91	Crile and Quiring, 1940	mass	
	119	<i>Microtus pennsylvanicus</i>	M	53	27.90	0.74	0.66	1.14	0.88	Crile and Quiring, 1940	mass	
	120	<i>Microtus oeconomus stimmingi</i>	M	1	45.00	0.68	0.44	0.74	0.59	Brauer and Shauber, 1970	mass	
	121	<i>Microtus arvalis arvalis</i>	F	1	20.50	0.40	0.44	0.77	0.58	Brauer and Shauber, 1970	mass	
	122	<i>Microtus agrestis</i>	-	-	30.50	0.53	0.45	0.77	0.59	Mangold-Wirz, 1966	mass	
	123	<i>Gerbillus nanus</i>	-	-	18.00	0.52	0.62	1.11	0.82	Compont-Monmignaut, 1973	mass	
	124	<i>Gerbillus pyramidum</i>	-	-	79.00	1.14	0.51	0.81	0.69	Compont-Monmignaut, 1973	mass	
	125	<i>Gerbillus pyramidum</i>	F	1	70.00	1.20	0.58	0.94	0.79	Brauer and Shauber, 1970	mass	
	126	<i>Gerbillus pyramidum</i>	M	-	72.30	1.08	0.51	0.82	0.69	Müller et al., 1969	mass	
	127	<i>Gerbillus pyramidum</i>	M	-	79.00	1.06	0.47	0.75	0.64	Müller et al., 1969	mass	
	128	<i>Gerbillus pyramidum</i>	F	-	57.90	1.00	0.55	0.90	0.74	Müller et al., 1969	mass	
	129	<i>Gerbillus pyramidum</i>	F	-	59.40	0.98	0.53	0.86	0.72	Müller et al., 1969	mass	
	130	<i>Gerbillus gerbillus</i>	-	1	95.00	3.40	1.34	2.11	1.83	Warncke, 1908	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Myomorpha	Cricetidae	131	<i>Meriones shawei</i>	-	-	140.00	1.48	0.45	0.69	0.62	Compoint-Monmignaut, 1973	mass
		132	<i>Meriones libycus</i>	-	-	93.00	1.51	0.60	0.95	0.83	Compoint-Monmignaut, 1973	mass
		133	<i>Meriones crassus</i>	-	-	122.00	1.36	0.45	0.70	0.62	Compoint-Monmignaut, 1973	mass
		134	<i>Meriones unguiculatus</i>	M	1	50.00	1.30	0.79	1.30	1.06	Brauer and Shauber, 1970	mass
		135	<i>Meriones meridianus</i>	M	1	50.00	1.20	0.73	1.20	0.98	Brauer and Shauber, 1970	mass
		136	<i>Dendromus mesomelas</i>	-	-	14.00	0.51	0.73	1.31	0.94	Compoint-Monmignaut, 1973	mass
		137	<i>Malacothrix typicus</i>	-	-	124.00	0.50	0.16	0.26	0.23	Compoint-Monmignaut, 1973	mass
		138	<i>Otomys iroratus</i>	-	-	66.00	1.62	0.82	1.32	1.10	Compoint-Monmignaut, 1973	mass
		139	<i>Mystromys albicaudatus</i>	-	-	130.00	1.47	0.47	0.72	0.65	Compoint-Monmignaut, 1973	mass
		140	<i>Cricetomys emini</i>	-	-	1000.00	6.60	0.54	0.72	0.79	Compoint-Monmignaut, 1973	mass
		141	<i>Brachytarsomys albicaudata</i>	-	-	300.00	2.47	0.45	0.66	0.64	Compoint-Monmignaut, 1973	mass
		142	<i>Eliurus minor</i>	-	-	38.00	1.46	1.06	1.79	1.42	Compoint-Monmignaut, 1973	mass
		143	<i>Eliurus myoxinus</i>	-	-	59.00	1.69	0.92	1.50	1.24	Compoint-Monmignaut, 1973	mass
	Rhyzomyidae	144	<i>Clethrionomys glareolus</i> (<i>Myodes glareolus</i>)	M	1	20.00	0.70	0.78	1.38	1.03	Brauer and Shauber, 1970	mass
		145	<i>Clethrionomys glareolus</i>	-	-	35.00	0.59	0.46	0.77	0.61	Mangold-Wirz, 1966	mass
		146	<i>Lagurus lagurus</i>	F	1	15.00	0.40	0.54	0.98	0.71	Brauer and Shauber, 1970	mass
		147	<i>Tachyoryctes ruandae</i>	M	1	282.00	2.10	0.40	0.58	0.56	Pilleri et al., 1984	mass
		148	<i>Tachyoryctes ruandae</i>	F	1	174.00	2.29	0.60	0.91	0.84	Pilleri et al., 1984	mass
		149	<i>Tachyoryctes ruandae</i>	F	1	206.00	2.40	0.56	0.84	0.79	Pilleri et al., 1984	mass
		150	<i>Tachyoryctes splendens</i>	-	-	218.00	2.24	0.51	0.75	0.71	Compoint-Monmignaut, 1973	mass
Spalacidae	151	<i>Spalax typhlus</i>	-	1	214.00	1.90	0.43	0.65	0.61	Pilleri et al., 1984	mass	
	152	<i>Spalax leucodon</i>	-	1	180.00	2.63	0.68	1.02	0.94	Brauer and Shauber, 1970	mass	
	153	<i>Spalax hungaricus</i>	-	1	122.00	3.00	1.00	1.55	1.38	Warncke, 1908	mass	
	154	<i>Mastomys coucha</i>	M	1	21.80	0.71	0.75	1.32	0.99	Crile and Quiring, 1940	mass	
Sciuromorpha	Aplodontidae	155	<i>Aplodontia rufa</i>	M	1	982.00	7.60	0.63	0.84	0.92	Pilleri, 1960a	mass
		156	<i>Aplodontia rufa</i>	F	1	870.00	8.40	0.75	1.01	1.09	Pilleri, 1960a	mass
		157	<i>Aplodontia rufa</i>	M	1	710.00	8.40	0.86	1.18	1.25	Pilleri, 1960a	mass
		158	<i>Aplodontia rufa</i>	M	1	985.00	8.80	0.72	0.97	1.06	Pilleri, 1960a	mass
		159	<i>Aplodontia rufa</i>	-	-	887.00	8.30	0.73	0.99	1.07	Mangold-Wirz, 1966	mass
	Sciuridae	160	<i>Marmota marmota</i>	-	1	5000.00	16.00	0.44	0.53	0.68	Brauer and Shauber, 1970	mass
		161	<i>Marmota marmota</i>	M	1	4050.00	17.00	0.54	0.66	0.82	Pilleri, 1959	mass

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Sciuromorpha												
Sciuridae	162	<i>Marmota marmota</i>	M	1	2950.00	17.00	0.67	0.83	1.01	Pilleri, 1959	mass	
	163	<i>Marmota marmota</i>	-	-	3500.00	17.00	0.60	0.73	0.91	Mangold-Wirz, 1966	mass	
	164	<i>Marmota sibirica</i>	-	1	1890.00	18.10	0.96	1.23	1.43	Warncke, 1908	mass	
	165	<i>Spermophilus parrii</i>	M	5	878.00	5.63	0.50	0.68	0.73	Crile and Quiring, 1940	mass	
	166	<i>Spermophilus parrii</i>	F	3	958.00	5.74	0.48	0.65	0.70	Crile and Quiring, 1940	mass	
	167	<i>Spermophilus suslicus</i>	-	8	224.00	2.30	0.51	0.76	0.71	Nikitenko, 1966	mass	
	168	<i>Spermophilus lateralis</i>	F	20	246.00	2.98	0.62	0.92	0.87	Iwaniuk 2001	converted to mass	3.13
	169	<i>Spermophilus lateralis</i>	M	8	217.00	3.10	0.70	1.04	0.98	Iwaniuk 2001	converted to mass	3.25
	170	<i>Spermophilus tridecemlineatus</i>	F	12	139.00	2.16	0.66	1.01	0.91	Iwaniuk, 2001	converted to mass	2.27
	171	<i>Spermophilus tridecemlineatus</i>	M	19	153.00	2.30	0.66	1.00	0.91	Iwaniuk, 2001	converted to mass	2.41
	172	<i>Spermophilus columbianus</i>	F	46	482.00	3.52	0.47	0.66	0.67	Iwaniuk, 2001	converted to mass	3.70
	173	<i>Spermophilus columbianus</i>	M	35	529.00	3.57	0.45	0.62	0.64	Iwaniuk, 2001	converted to mass	3.75
	174	<i>Spermophilus parryii</i>	F	7	482.00	3.95	0.52	0.74	0.75	Iwaniuk, 2001	converted to mass	4.15
	175	<i>Spermophilus parryii</i>	M	3	756.00	4.98	0.49	0.67	0.71	Iwaniuk, 2001	converted to mass	5.23
	176	<i>Spermophilus richarsonii</i>	F	49	354.00	3.08	0.50	0.72	0.71	Iwaniuk, 2001	converted to mass	3.23
	177	<i>Spermophilus richarsonii</i>	M	42	361.00	3.31	0.53	0.77	0.76	Iwaniuk, 2001	converted to mass	3.48
	178	<i>Citellus citellus</i> (<i>Spermophilus citellus</i>)	-	1	290.00	2.58	0.48	0.70	0.68	Brauer and Shauber, 1970	mass	
	179	<i>Cynomys ludovicianus</i>	F	1	1200.00	6.40	0.46	0.61	0.68	Brauer and Shauber, 1970	mass	
	180	<i>Heliosciurus gambianus</i>	-	53	209.80	3.53	0.82	1.22	1.15	Roth and Thorington, 1982	converted to mass	3.71
	181	<i>Heliosciurus rufobrachium isabellinus</i>	-	16	280.90	4.84	0.92	1.35	1.30	Roth and Thorington, 1982	converted to mass	5.08
	182	<i>Heliosciurus rufobrachium rufobrachium</i>	-	4	334.00	5.03	0.85	1.23	1.21	Roth and Thorington, 1982	converted to mass	5.28
	183	<i>Aethosciurus poensis</i>	-	1	100.00	2.73	1.04	1.64	1.43	Roth and Thorington, 1982	converted to mass	2.87
	184	<i>Funisciurus carruthersi</i>	F	1	107.50	4.00	1.45	2.27	1.99	Pilleri, 1959	mass	
	185	<i>Funisciurus carruthersi</i>	F	1	158.00	4.50	1.26	1.92	1.75	Pilleri, 1959	mass	
	186	<i>Funisciurus carruthersi</i>	M	1	195.50	3.25	0.79	1.18	1.10	Pilleri, 1959	mass	
	187	<i>Funisciurus carruthersi</i>	-	-	168.00	4.10	1.10	1.67	1.53	Compoint-Monmignaut, 1973	mass	
	188	<i>Funisciurus carruthersi</i>	-	-	195.00	4.65	1.13	1.70	1.58	Mangold-Wirz, 1966	mass	
	189	<i>Funisciurus pyrrhopus</i>	-	17	258.75	4.47	0.90	1.32	1.27	Roth and Thorington, 1982	converted to mass	4.69
	190	<i>Funisciurus anaerythrus</i>	-	1	230.00	4.03	0.88	1.30	1.23	Roth and Thorington, 1982	converted to mass	4.23
	191	<i>Funisciurus substriatus</i>	-	12	186.10	3.70	0.93	1.40	1.30	Roth and Thorington, 1982	converted to mass	3.89
	192	<i>Funisciurus lemniscatus</i>	-	2	154.00	3.22	0.92	1.40	1.27	Roth and Thorington, 1982	converted to mass	3.38
	193	<i>Funisciurus isabella</i>	-	2	160.50	3.14	0.87	1.33	1.21	Roth and Thorington, 1982	converted to mass	3.30

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenber g (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Sciuromorpha												
	Sciuridae											
	194	<i>Sciurus niger</i>	F	1	703.00	10.20	1.05	1.44	1.52	Pilleri, 1960b	mass	
	195	<i>Sciurus niger</i>	-	-	770.00	10.50	1.02	1.39	1.48	Mangold-Wirz, 1966	mass	
	196	<i>Sciurus niger cinereus</i>	-	1	328.00	7.20	1.24	1.79	1.75	Warncke, 1908	mass	
	197	<i>Sciurus vulgaris</i>	M	1	350.00	7.50	1.23	1.78	1.75	Brauer and Shauber, 1970	mass	
	198	<i>Sciurus vulgaris</i>	-	-	323.00	6.10	1.06	1.53	1.50	Brummelkamp, 1939	mass	
	199	<i>Sciurus vulgaris</i>	-	-	287.00	5.81	1.09	1.59	1.54	Brummelkamp, 1939	mass	
	200	<i>Sciurus vulgaris</i>	-	10	316.00	5.89	1.04	1.51	1.47	Nikitenko, 1966	mass	
	201	<i>Sciurus vulgaris</i>	-	-	327.00	6.23	1.07	1.55	1.52	Sacher and Staffeldt, 1974	mass	
	202	<i>Sciurus vulgaris</i>	-	-	361.00	5.85	0.94	1.35	1.34	Compont-Monmignaut, 1973	mass	
	203	<i>Sciurus vulgaris</i>	-	1	389.00	6.00	0.92	1.31	1.31	Anthony, 1928	mass	
	204	<i>Sciurus rufiventer</i>	-	-	650.00	9.20	1.00	1.38	1.44	Brummelkamp, 1939	mass	
	205	<i>Sciurus rufiventer</i>	-	-	580.00	8.95	1.05	1.46	1.51	Brummelkamp, 1939	mass	
	206	<i>Parasciurus rufiventer (Sciurus rufiventer)</i>	-	1	365.00	6.90	1.10	1.58	1.57	Warncke, 1908	mass	
		<i>Parasciurus rufiventer (Sciurus rufiventer)</i>	-	1	365.00	6.50	1.04	1.49	1.48	Warncke, 1908	mass	
	208	<i>Sciurus carolinesis</i>	-	-	469.00	7.58	1.03	1.45	1.47	Brummelkamp, 1939	mass	
	209	<i>Sciurus carolinesis</i>	-	-	466.00	7.48	1.02	1.43	1.45	Brummelkamp, 1939	mass	
	210	<i>Sciurus carolinesis</i>	-	-	535.00	7.53	0.93	1.30	1.34	Mangold-Wirz, 1966	mass	
	211	<i>Sciurus bicolor (Ratufa bicolor)</i>	-	-	1440.00	12.00	0.77	1.00	1.13	Mangold-Wirz, 1966	mass	
	212	<i>Sciurus bicolor (Ratufa bicolor)</i>	-	1	1400.00	12.00	0.78	1.02	1.15	Anthony, 1928	mass	
	213	<i>Parasciurus indicus (Ratufa indicus)</i>	-	1	1935.00	11.40	0.60	0.76	0.89	Warncke, 1908	mass	
	214	<i>Parasciurus indicus (Ratufa indicus)</i>	-	1	1010.00	11.60	0.94	1.25	1.37	Warncke, 1908	mass	
	215	<i>Eutamias sibiricus</i>	M	1	110.00	2.60	0.93	1.45	1.28	Brauer and Shauber, 1970	mass	
	216	<i>Tamias striatus</i>	M	1	80.00	2.70	1.19	1.91	1.63	Pilleri, 1960b	mass	
	217	<i>Tamias striatus</i>	M	1	97.00	2.90	1.13	1.78	1.54	Pilleri, 1960b	mass	
	218	<i>Tamias striatus</i>	M	2	75.00	2.22	1.03	1.64	1.39	Crile and Quiring, 1940	mass	
	219	<i>Tamias striatus</i>	-	-	62.00	2.31	1.21	1.97	1.64	Mangold-Wirz, 1966	mass	
	220	<i>Tamiasciurus hudsonicus</i>	F	1	125.00	4.80	1.57	2.44	2.17	Pilleri, 1960b	mass	
	221	<i>Tamiasciurus hudsonicus</i>	-	-	159.00	4.10	1.15	1.74	1.59	Brummelkamp, 1939	mass	
	222	<i>Tamiasciurus hudsonicus</i>	F	4	248.00	5.02	1.04	1.53	1.46	Crile and Quiring, 1940	mass	
	223	<i>Tamiasciurus hudsonicus</i>	M	4	183.00	4.71	1.20	1.80	1.67	Crile and Quiring, 1940	mass	
	224	<i>Tamiasciurus hudsonicus</i>	F	2	169.00	4.21	1.13	1.71	1.57	Crile and Quiring, 1940	mass	
	225	<i>Tamiasciurus hudsonicus</i>	M	1	183.00	3.97	1.01	1.52	1.41	Crile and Quiring, 1940	mass	
	226	<i>Tamiasciurus hudsonicus</i>	-	-	159.00	4.80	1.34	2.04	1.86	Mangold-Wirz, 1966	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Sciuromorpha												
Sciuridae	227	<i>Epixerus ebii</i>	-	2	605.00	9.77	1.11	1.54	1.61	Roth and Thorington, 1982	converted to mass	10.26
	228	<i>Atlantoxerus getulus</i>	-	18	251.00	3.75	0.77	1.14	1.08	Roth and Thorington, 1982	converted to mass	3.94
	229	<i>Xerus inauris</i>	-	8	638.00	6.41	0.71	0.97	1.02	Roth and Thorington, 1982	converted to mass	6.73
	230	<i>Paraxerus emini</i>	M	1	80.50	2.70	1.19	1.90	1.62	Pilleri, 1959	mass	
	231	<i>Paraxerus cepapi</i>	-	5	223.80	3.22	0.71	1.06	1.00	Roth and Thorington, 1982	converted to mass	3.38
	232	<i>Protoxerus stangeri</i>	-	5	690.60	10.25	1.07	1.47	1.55	Roth and Thorington, 1982	converted to mass	10.76
	233	<i>Protoxerus aubinni</i>	-	1	525.00	8.03	1.01	1.41	1.45	Roth and Thorington, 1982	converted to mass	8.43
	234	<i>Ictidomys tridecemlineatus</i>	-	1	200.00	2.20	0.53	0.79	0.74	Warncke, 1908	mass	
	235	<i>Ictidomys tridecemlineatus</i>	-	1	115.00	2.40	0.83	1.30	1.14	Warncke, 1908	mass	
	236	<i>Glaucomys volans</i>	-	-	52.00	1.89	1.12	1.84	1.50	Sacher and Staffeldt, 1974	mass	
	237	<i>Glaucomys</i>	M	1	50.00	0.90	0.54	0.90	0.73	Pirlot and Kamiya, 1982	mass	
	238	<i>Iomys</i>	F	1	119.00	2.10	0.71	1.10	0.98	Pirlot and Kamiya, 1982	mass	
	239	<i>Sciuropterus volans</i>	-	-	64.00	1.92	0.99	1.60	1.33	Brummelkamp, 1939	mass	
	240	<i>Pteromys nitidus</i>	-	-	1600.00	11.80	0.70	0.91	1.04	Brummelkamp, 1939	mass	
	241	<i>Graphiurus saturatus</i>	M	1	17.70	0.55	0.67	1.19	0.87	Crile and Quiring, 1940	mass	
	242	<i>Glis glis</i>	-	-	118.00	1.40	0.48	0.74	0.66	Mangold-Wirz, 1966	mass	
	243	<i>Glis glis (Myoxus glis)</i>	-	1	148.00	1.90	0.56	0.85	0.77	Warncke, 1908	mass	
	244	<i>Muscardinus avellanarius</i>	-	1	13.00	0.50	0.75	1.35	0.97	Warncke, 1908	mass	
Hystricomorpha												
Erethizontoidea	245	<i>Erethizon dorsatum</i>	F	1	5160.00	27.90	0.76	0.90	1.16	Pilleri et al., 1984	mass	
	246	<i>Erethizon dorsatum</i>	M	1	3430.00	28.70	1.02	1.26	1.55	Pilleri et al., 1984	mass	
	247	<i>Erethizon dorsatum</i>	M	1	4980.00	25.10	0.70	0.83	1.07	Pilleri et al., 1984	mass	
	248	<i>Erethizon dorsatum</i>	F	1	4980.00	27.20	0.76	0.90	1.16	Pilleri et al., 1984	mass	
	249	<i>Erethizon dorsatum</i>	F	1	4640.00	27.10	0.79	0.95	1.20	Pilleri et al., 1984	mass	
	250	<i>Erethizon dorsatum</i>	M	1	6200.00	27.10	0.65	0.77	1.00	Pilleri et al., 1984	mass	
	251	<i>Erethizon dorsatum</i>	-	-	6640.00	24.00	0.55	0.64	0.85	Sacher and Staffeldt, 1974	mass	
	252	<i>Erethizon dorsatum</i>	F	1	2800.00	30.77	1.26	1.56	1.89	Crile and Quiring, 1940	mass	
	253	<i>Erethizon dorsatum</i>	F	2	2725.00	21.22	0.88	1.10	1.33	Crile and Quiring, 1940	mass	
	254	<i>Erethizon dorsatum</i>	M	1	3410.00	19.15	0.69	0.84	1.04	Crile and Quiring, 1940	mass	
	255	<i>Erethizon dorsatum</i>	F	1	5000.00	24.00	0.66	0.79	1.02	Brauer and Shauber, 1970	mass	
	256	<i>Myocastor coypus</i>	-	1	3300.00	23.00	0.84	1.04	1.27	Pilleri, 1959	mass	
Octodontoidea	257	<i>Myocastor coypus</i>	M	1	3380.00	19.00	0.68	0.84	1.03	Pilleri, 1959	mass	
	258	<i>Myocastor coypus</i>	-	-	5000.00	23.00	0.64	0.76	0.97	Sacher and Staffeldt, 1974	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Hystricomorpha	Octodontoidea	259	<i>Myocastor coypus</i>	-	-	5300.00	18.70	0.50	0.59	0.76	Compoint-Monmignaut, 1973	mass
		260	<i>Myocastor coypus</i>	-	2	3300.00	21.00	0.77	0.95	1.16	Nikitenko, 1966	mass
		261	<i>Myocastor coypus</i>	M	1	7450.00	15.64	0.33	0.39	0.51	Weidemann, 1967	mass
		262	<i>Myocastor coypus</i>	F	1	7530.00	15.60	0.33	0.38	0.51	Weidemann, 1967	mass
		263	<i>Myocastor coypus</i>	F	1	8475.00	17.55	0.34	0.39	0.53	Weidemann, 1967	mass
		264	<i>Myocastor coypus</i>	-	-	5510.00	17.43	0.45	0.54	0.69	Weidemann, 1967	mass
		265	<i>Myocastor coypus</i>	F	-	3800.00	14.77	0.49	0.60	0.75	Weidemann, 1967	mass
		266	<i>Myocastor coypus</i>	-	-	5700.00	18.35	0.47	0.55	0.71	Weidemann, 1967	mass
		267	<i>Myocastor coypus f domestica</i>	F	1	3500.00	18.40	0.65	0.79	0.98	Brauer and Shauber, 1970	mass
		268	<i>Myocastor coypus</i>	-	-	5000.00	23.00	0.64	0.76	0.97	Mangold-Wirz, 1966	mass
		269	<i>Myocastor pratti</i>	-	-	780.00	9.90	0.95	1.30	1.38	Sacher and Staffeldt, 1974	mass
		270	<i>Capromys pilorides</i>	F	1	7000.00	11.00	0.24	0.28	0.38	Brauer and Shauber, 1970	mass
Cavioidea		271	<i>Dolichotis patagonum</i>	-	1	5650.00	25.66	0.65	0.78	1.00	Pilleri, 1959	mass
		272	<i>Dolichotis patagonum</i>	M	1	7880.00	33.50	0.68	0.79	1.06	Weidemann, 1967	mass
		273	<i>Dolichotis patagonum</i>	F	1	7500.00	32.00	0.68	0.79	1.04	Weidemann, 1967	mass
		274	<i>Dolichotis patagonum</i>	F	1	5500.00	26.00	0.68	0.80	1.04	Weidemann, 1967	mass
		275	<i>Dolichotis patagonum</i>	F	1	7200.00	30.00	0.65	0.76	1.01	Weidemann, 1967	mass
		276	<i>Dolichotes patagonica</i>	F	1	5500.00	15.00	0.39	0.46	0.60	Brauer and Shauber, 1970	mass
		277	<i>Dolichotis patagona</i>	-	-	5650.00	25.70	0.66	0.78	1.01	Mangold-Wirz, 1966	mass
		278	<i>Dasyprocta agouti</i>	M	1	3600.00	21.60	0.75	0.91	1.13	Pilleri, 1959	mass
		279	<i>Dasyprocta agouti</i>	-	1	2684.00	20.00	0.84	1.05	1.26	Brummelkamp, 1939	mass
		280	<i>Dasyprocta agouti</i>	F	1	2390.00	18.40	0.84	1.05	1.25	Weidemann, 1967	mass
		281	<i>Dasyprocta agouti</i>	M	1	2004.00	17.00	0.87	1.11	1.29	Weidemann, 1967	mass
		282	<i>Dasyprocta agouti</i>	F	1	2880.00	18.50	0.74	0.92	1.12	Weidemann, 1967	mass
		283	<i>Dasyprocta agouti</i>	F	1	2350.00	18.00	0.83	1.04	1.24	Weidemann, 1967	mass
		284	<i>Dasyprocta agouti</i>	-	1	2550.00	17.00	0.74	0.93	1.11	Weidemann, 1967	mass
		285	<i>Dasyprocta agouti</i>	M&F	2	3172.00	18.30	0.69	0.85	1.04	Weidemann, 1967	mass
		286	<i>Dasyprocta agouti</i>	-	-	2371.00	19.80	0.90	1.14	1.35	Weidemann, 1967	mass
		287	<i>Dasyprocta agouti</i>	M	1	2400.00	27.00	1.22	1.54	1.83	Brauer and Shauber, 1970	mass
		288	<i>Dasyprocta aguti</i>	-	-	2370.00	19.80	0.90	1.14	1.35	Mangold-Wirz, 1966	mass
		289	<i>Dasyprocta punctata</i>	M&F	2	3172.00	18.34	0.69	0.85	1.04	Crile and Quiring, 1940	mass
		290	<i>Dasyprocta mexicanus</i>	F	1	1527.00	17.80	1.09	1.42	1.61	Anthony, 1928	mass
		291	<i>Dasyprocta mexicanus</i>	F	1	2300.00	20.00	0.93	1.18	1.39	Anthony, 1928	mass
		292	<i>Cuniculus paca</i>	-	1	5635.00	35.80	0.92	1.09	1.40	Warncke, 1908	mass

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Hystricomorpha												
	Cavioidea											
	293	<i>Cuniculus paca</i>	M&F	3	3627.00	21.85	0.75	0.92	1.14	Crile and Quiring, 1940	mass	
	294	<i>Cuniculus paca</i>	M	1	4559.00	48.00	1.41	1.70	2.16	Crile and Quiring, 1940	mass	
	295	<i>Cuniculus paca</i>	M	1	6125.00	33.50	0.81	0.95	1.25	Weidemann, 1967	mass	
	296	<i>Cuniculus paca</i>	F	1	3665.00	33.20	1.13	1.38	1.72	Weidemann, 1967	mass	
	297	<i>Cuniculus paca</i>	M	1	9000.00	37.30	0.70	0.80	1.08	Weidemann, 1967	mass	
	298	<i>Cuniculus paca</i>	-	-	5000.00	26.10	0.72	0.86	1.11	Mangold-Wirz, 1966	mass	
	299	<i>Cavia porcellus</i>	F	1	520.00	5.40	0.68	0.95	0.98	Pilleri et al., 1984	mass	
	300	<i>Cavia porcellus</i>	F	1	650.00	5.80	0.63	0.87	0.91	Pilleri et al., 1984	mass	
	301	<i>Cavia porcellus</i>	-	1	348.00	6.40	1.06	1.52	1.50	Warncke, 1908	mass	
	302	<i>Cavia porcellus</i>	-	1	648.00	4.40	0.48	0.66	0.69	Warncke, 1908	mass	
	303	<i>Cavia porcellus</i>	-	1	493.10	3.80	0.50	0.70	0.71	Warncke, 1908	mass	
	304	<i>Cavia porcellus</i>	M	2	361.00	4.10	0.66	0.95	0.94	Crile and Quiring, 1940	mass	
	305	<i>Cavia porcellus</i>	F	2	324.00	3.80	0.66	0.95	0.93	Crile and Quiring, 1940	mass	
	306	<i>Cavia porcellus</i>	F	56	214.94	3.32	0.76	1.13	1.06	Crile and Quiring, 1940	mass	
	307	<i>Cavia porcellus</i>	M	46	214.57	3.28	0.75	1.12	1.05	Crile and Quiring, 1940	mass	
	308	<i>Cavia porcellus</i>	F	10	432.00	4.00	0.57	0.81	0.82	Crile and Quiring, 1940	mass	
	309	<i>Cavia porcellus</i>	M	10	456.00	4.23	0.58	0.82	0.83	Crile and Quiring, 1940	mass	
	310	<i>Cavia porcellus</i>	-	-	700.00	4.73	0.49	0.67	0.71	Brummelkamp, 1939	mass	
	311	<i>Cavia porcellus</i>	-	-	675.00	4.54	0.48	0.66	0.70	Brummelkamp, 1939	mass	
	312	<i>Cavia porcellus</i>	-	8	971.00	4.28	0.36	0.48	0.52	Sacher and Staffeldt, 1974	mass	
	313	<i>Cavia porcellus</i>	-	-	900.00	4.94	0.43	0.58	0.63	Campos and Welker, 1976	mass	
	314	<i>Cavia porcellus</i>	-	-	500.00	5.00	0.65	0.91	0.93	Anthony, 1928	mass	
	315	<i>Cavia aperea f. porcellus</i>	M	1	485.00	4.57	0.60	0.85	0.87	Brauer and Shauber, 1970	mass	
	316	<i>Cavia aperea</i>	-	1	163.00	2.70	0.74	1.13	1.03	Weidemann, 1967	mass	
	317	<i>Cavia aperea</i>	F	1	260.00	3.00	0.60	0.89	0.85	Weidemann, 1967	mass	
	318	<i>Cavia aperea</i>	M	1	430.00	3.90	0.56	0.79	0.80	Weidemann, 1967	mass	
	319	<i>Cavia aperea</i>	M	1	647.00	5.46	0.60	0.82	0.86	Weidemann, 1967	mass	
	320	<i>Cavia aperea</i>	M	1	460.00	4.20	0.58	0.81	0.82	Weidemann, 1967	mass	
	321	<i>Cavia aperea</i>	M	1	792.00	4.70	0.45	0.61	0.65	Weidemann, 1967	mass	
	322	<i>Cavia aperea</i>	F	1	540.00	4.10	0.50	0.70	0.72	Weidemann, 1967	mass	
	323	<i>Kerodon Spixii (Galea spixii)</i>	-	1	672.00	6.20	0.66	0.91	0.95	Warncke, 1908	mass	
	324	<i>Hydrochoerus hydrochaeris</i>	F	1	31000.00	85.00	0.69	0.73	1.12	Pilleri et al., 1984	mass	
	325	<i>Hydrochoerus hydrochaeris</i>	-	1	24130.00	61.40	0.59	0.63	0.95	Pilleri et al., 1984	mass	
	326	<i>Hydrochoerus hydrochaeris</i>	-	-	29500.00	76.00	0.64	0.68	1.03	Sacher and Staffeldt, 1974	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Hystricomorpha	Cavioidea	327	<i>Hydrochoerus hydrochaeris</i>	-	1	10000.00	55.00	0.96	1.09	1.49	Campos and Welker, 1976	mass
		328	<i>Hydrochoerus hydrochaeris</i>	F	1	12000.00	53.00	0.82	0.92	1.28	Campos and Welker, 1976	mass
		329	<i>Hydrochoerus hydrochaeris</i>	F	1	13000.00	53.00	0.77	0.87	1.22	Campos and Welker, 1976	mass
		330	<i>Hydrochoerus hydrochaeris</i>	M	1	17000.00	61.00	0.74	0.82	1.18	Campos and Welker, 1976	mass
		331	<i>Hydrochoerus hydrochaeris</i>	M	1	28000.00	52.00	0.45	0.48	0.73	Campos and Welker, 1976	mass
		332	<i>Hydrochoerus hydrochaeris</i>	-	1	24031.00	61.40	0.59	0.64	0.95	Nikitenko, 1966	mass
		333	<i>Hydrochoerus hydrochaeris</i>	-	1	28500.00	75.00	0.65	0.69	1.04	Brummelkamp, 1939	mass
		334	<i>Hydrochoerus hydrochaeris</i>	M&F	2	27670.00	52.21	0.46	0.49	0.74	Crile and Quiring, 1940	mass
		335	<i>Hydrochoerus hydrochaeris</i>	F	1	26700.00	75.00	0.68	0.72	1.08	Weidemann, 1967	mass
		336	<i>Hydrochoerus hydrochaeris</i>	F	1	34300.00	73.00	0.56	0.58	0.90	Weidemann, 1967	mass
		337	<i>Hydrochoerus hydrochaeris</i>	F	1	33000.00	75.50	0.59	0.62	0.95	Weidemann, 1967	mass
		338	<i>Hydrochoerus hydrochaeris</i>	F	1	54000.00	82.00	0.46	0.47	0.75	Weidemann, 1967	mass
		339	<i>Hydrochoerus hydrochaeris</i>	-	1	29500.00	76.02	0.64	0.68	1.03	Weidemann, 1967	mass
		340	<i>Hydrochoerus hydrochaeris</i>	F	-	28000.00	75.00	0.66	0.69	1.05	Weidemann, 1967	mass
		341	<i>Hydrochoerus hydrochaeris</i>	M	1	32500.00	71.00	0.56	0.59	0.90	Anthony, 1928	mass
	Chinchilloidea	342	<i>Chinchilla brevicaudata</i>	M	1	520.00	7.80	0.98	1.38	1.41	Pilleri, 1959	mass
		343	<i>Chinchilla brevicaudata</i>	M	1	425.00	6.40	0.92	1.31	1.32	Pilleri et al., 1984	mass
		344	<i>Chinchilla brevicaudata</i>	M	1	320.00	6.90	1.21	1.75	1.71	Pilleri et al., 1984	mass
		345	<i>Chinchilla brevicaudata</i>	M	1	470.00	8.90	1.20	1.70	1.72	Pilleri et al., 1984	mass
		346	<i>Chinchilla brevicaudata</i>	M	1	450.00	6.00	0.83	1.18	1.19	Pilleri et al., 1984	mass
		347	<i>Chinchilla laginera</i>	-	-	432.00	5.20	0.74	1.05	1.06	Sacher and Staffeldt, 1974	mass
		348	<i>Chinchilla laginera</i>	M	1	380.00	5.20	0.81	1.16	1.15	Weidemann, 1967	mass
		349	<i>Chinchilla laginera</i>	M	1	385.00	5.05	0.78	1.12	1.11	Weidemann, 1967	mass
		350	<i>Chinchilla laginera</i>	M	1	460.00	5.10	0.70	0.99	1.00	Weidemann, 1967	mass
		351	<i>Chinchilla laginera</i>	M	1	385.00	4.90	0.76	1.08	1.08	Weidemann, 1967	mass
		352	<i>Chinchilla laginera</i>	M	1	370.00	5.32	0.84	1.21	1.20	Weidemann, 1967	mass
		353	<i>Chinchilla laginera</i>	M	1	385.00	5.50	0.85	1.21	1.21	Weidemann, 1967	mass
		354	<i>Chinchilla laginera</i>	-	-	425.00	6.40	0.92	1.31	1.32	Mangold-Wirz, 1966	mass
		355	<i>Chinchilla velligera f. domestica</i>	F	1	500.00	6.00	0.78	1.09	1.11	Brauer and Shauber, 1970	mass
		356	<i>Lagostomus maximus</i>	M	1	6630.00	20.00	0.46	0.54	0.71	Weidemann, 1967	mass
		357	<i>Lagostomus maximus</i>	M	1	6385.00	21.00	0.49	0.58	0.76	Weidemann, 1967	mass
		358	<i>Lagostomus maximus</i>	M	1	5965.00	17.20	0.42	0.50	0.65	Weidemann, 1967	mass
		359	<i>Lagostomus maximus</i>	F	1	3930.00	18.00	0.59	0.71	0.89	Weidemann, 1967	mass
		360	<i>Lagostomus maximus</i>	F	1	3765.00	16.50	0.55	0.67	0.84	Weidemann, 1967	mass

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Hystricomorpha Chinchilloidea	361	<i>Lagostomus maximus</i>	F	1	2940.00	16.30	0.64	0.80	0.97	Weidemann, 1967	mass	
	362	<i>Lagostomus maximus</i>	M	1	7000.00	17.00	0.38	0.44	0.58	Brauer and Shauber, 1970	mass	
	363	<i>Lagostomus trichodactylus (Lagostomus maximus)</i>	-	-	3854.00	8.80	0.29	0.35	0.44	Brummelkamp, 1939	mass	
	364	<i>Lagostomus peruanum</i>	M	1	1575.00	12.20	0.73	0.95	1.08	Weidemann, 1967	mass	
	365	<i>Lagostomus peruanum</i>	F	1	1990.00	14.50	0.74	0.95	1.11	Weidemann, 1967	mass	
	366	<i>Lagostomus peruanum</i>	-	1	1395.00	12.00	0.78	1.02	1.15	Weidemann, 1967	mass	
	367	<i>Lagostomus peruanum</i>	M	1	1500.00	11.10	0.69	0.90	1.02	Weidemann, 1967	mass	
	368	<i>Lagostomus peruanum</i>	M	1	1265.00	11.80	0.82	1.08	1.21	Weidemann, 1967	mass	
	369	<i>Lagostomus peruanum</i>	F	1	1125.00	13.20	0.99	1.32	1.46	Weidemann, 1967	mass	
	370	<i>Lagostomus peruanum</i>	F	1	1095.00	11.70	0.90	1.19	1.31	Weidemann, 1967	mass	
	371	<i>Lagostomus peruanum</i>	F	1	1440.00	13.00	0.83	1.08	1.22	Weidemann, 1967	mass	
	372	<i>Lagostomus peruanum</i>	M	1	1225.00	12.70	0.90	1.19	1.33	Weidemann, 1967	mass	
	373	<i>Lagostomus peruanum</i>	M	1	1510.00	12.60	0.78	1.01	1.15	Weidemann, 1967	mass	
	374	<i>Lagostomus peruanum</i>	F	1	1335.00	11.90	0.80	1.05	1.18	Weidemann, 1967	mass	
	375	<i>Lagostomus peruanum</i>	F	1	1325.00	11.90	0.80	1.05	1.18	Weidemann, 1967	mass	
	376	<i>Lagostomus peruanum</i>	F	1	1115.00	12.30	0.93	1.24	1.37	Weidemann, 1967	mass	
	377	<i>Lagostomus peruanum</i>	M	1	1075.00	11.00	0.85	1.14	1.25	Weidemann, 1967	mass	
	378	<i>Lagostomus peruanum</i>	F	1	1030.00	11.20	0.89	1.19	1.31	Weidemann, 1967	mass	
	379	<i>Lagostomus peruanum</i>	F	1	1125.00	11.20	0.84	1.12	1.24	Weidemann, 1967	mass	
	380	<i>Lagostomus peruanum</i>	F	1	1230.00	11.70	0.83	1.09	1.22	Weidemann, 1967	mass	
	381	<i>Lagostomus viscacia (Lagidium viscacia)</i>	-	-	2460.00	12.40	0.55	0.69	0.83	Mangold-Wirz, 1966	mass	
	382	<i>Viscacia viscacia (Lagidium viscacia)</i>	-	1	2252.00	16.00	0.76	0.96	1.13	Warncke, 1908	mass	
	383	<i>Viscacia viscacia (Lagidium viscacia)</i>	-	1	2350.00	15.20	0.70	0.88	1.05	Warncke, 1908	mass	
	384	<i>Viscacia viscacia (Lagidium viscacia)</i>	-	1	3845.00	14.80	0.49	0.60	0.74	Warncke, 1908	mass	
	385	<i>Hystrix cristata</i>	F	1	7036.50	36.50	0.80	0.94	1.24	Pilleri, 1959	mass	
	386	<i>Hystrix cristata</i>	F	1	15000.00	32.00	0.42	0.47	0.67	Brauer and Shauber, 1970	mass	
	387	<i>Hystrix cristata</i>	-	-	10000.00	37.00	0.64	0.73	1.00	Mangold-Wirz, 1966	mass	
	388	<i>Hystrix</i>	-	-	15000.00	37.50	0.50	0.55	0.78	Brummelkamp, 1939	mass	
	389	<i>Hystrix hybrid</i>	-	-	13500.00	37.00	0.53	0.59	0.83	Sacher and Staffeldt, 1974	mass	
	390	<i>Atherurus africanus</i>	M	1	1600.00	17.20	1.02	1.32	1.51	Pilleri, 1959	mass	
	391	<i>Atherurus africanus</i>	-	1	3620.00	25.30	0.87	1.06	1.32	Warncke, 1908	mass	
	392	<i>Atherurus africanus</i>	-	-	1925.00	17.80	0.93	1.19	1.39	Compoint-Monmignaut, 1973	mass	
	393	<i>Atherurus africanus</i>	-	-	2250.00	23.00	1.09	1.38	1.63	Mangold-Wirz, 1966	mass	

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Hystricomorpha												
Hystriidae	394	<i>Choeromys harrisoni</i>	M	1	3500.00	13.15	0.46	0.57	0.70	Pilleri, 1959	mass	
	395	<i>Choeromys harrisoni</i>	-	-	3500.00	13.15	0.46	0.57	0.70	Compoint-Monmignaut, 1973	mass	
Bathyergidae	396	<i>Acanthion brachyura longicauda</i>	F	1	22000.00	43.00	0.44	0.48	0.70	Brauer and Shauber, 1970	mass	
	397	<i>Acanthion javanicum</i>	F	1	23000.00	20.00	0.20	0.21	0.32	Brauer and Shauber, 1970	mass	
	398	<i>Aulacodus spec. (Thryonomys swinderianus)</i>	F	1	4500.00	12.00	0.36	0.43	0.54	Brauer and Shauber, 1970	mass	
	399	<i>Heterocephalus glaber</i>	-	1	39.00	0.52	0.37	0.63	0.50	Pilleri, 1960	mass	
Castorimorpha												
Castoridae	400	<i>Castor canadensis</i>	M	1	20500.00	44.00	0.47	0.51	0.75	Pilleri et al., 1984	mass	
	401	<i>Castor canadensis</i>	M	1	18000.00	53.00	0.62	0.68	0.99	Pilleri et al., 1984	mass	
	402	<i>Castor canadensis</i>	M	1	14500.00	45.00	0.61	0.68	0.96	Pilleri, 1959	mass	
	403	<i>Castor canadensis</i>	M	1	22500.00	52.00	0.53	0.57	0.84	Pilleri, 1959	mass	
	404	<i>Castor canadensis</i>	M	1	8000.00	38.00	0.77	0.89	1.19	Pilleri, 1959	mass	
	405	<i>Castor canadensis</i>	M	1	9750.00	48.00	0.85	0.97	1.32	Pilleri, 1959	mass	
	406	<i>Castor canadensis</i>	M	1	12500.00	42.00	0.63	0.71	0.99	Pilleri, 1959	mass	
	407	<i>Castor canadensis</i>	M	1	16000.00	38.00	0.48	0.53	0.76	Pilleri, 1959	mass	
	408	<i>Castor canadensis</i>	F	1	5500.00	43.00	1.12	1.33	1.71	Pilleri et al., 1984	mass	
	409	<i>Castor canadensis</i>	-	-	20000.00	40.00	0.44	0.47	0.70	Sacher and Staffeldt, 1974	mass	
	410	<i>Castor canadensis</i>	M	1	4180.00	25.48	0.80	0.96	1.21	Crile and Quiring, 1940	mass	
	411	<i>Castor canadensis</i>	F	1	5380.00	29.52	0.78	0.93	1.19	Crile and Quiring, 1940	mass	
	412	<i>Castor canadensis</i>	-	1	14500.00	45.00	0.61	0.68	0.96	Nikitenko, 1966	mass	
	413	<i>Castor fiber</i>	-	6	14300.00	41.40	0.57	0.63	0.89	Nikitenko, 1966	mass	
	414	<i>Castor fiber</i>	-	10	16900.00	38.80	0.48	0.52	0.75	Nikitenko, 1966	mass	
Geomyidae	415	<i>Castor fiber</i>	-	-	25000.00	45.00	0.42	0.45	0.68	Sacher and Staffeldt, 1974	mass	
	416	<i>Castor fiber</i>	-	1	23100.00	45.50	0.45	0.49	0.72	Pilleri, 1963	mass	
	417	<i>Castor fiber</i>	F	1	20000.00	39.00	0.43	0.46	0.68	Brauer and Shauber, 1970	mass	
	418	<i>Geomys bursarius</i>	-	7	192.40	1.49	0.37	0.55	0.51	Hafner and Hafner 1984	converted to mass	1.56
	419	<i>Geomys pinetis</i>	-	3	313.50	2.30	0.41	0.59	0.58	Hafner and Hafner 1984	converted to mass	2.42
	420	<i>Orthogeomys cherriei</i>	-	1	405.00	3.19	0.48	0.68	0.68	Hafner and Hafner 1984	converted to mass	3.35
	421	<i>Orthogeomys heterodus</i>	-	2	630.00	3.96	0.44	0.61	0.63	Hafner and Hafner 1984	converted to mass	4.16
	422	<i>Orthogeomys hispidus</i>	-	1	542.10	3.66	0.45	0.63	0.64	Hafner and Hafner 1984	converted to mass	3.84
	423	<i>Pappogeomys gymnurus</i>	-	8	637.00	3.85	0.42	0.59	0.61	Hafner and Hafner 1984	converted to mass	4.04
	424	<i>Thomomys bottae</i>	-	7	185.20	1.41	0.36	0.53	0.50	Hafner and Hafner 1984	converted to mass	1.48
	425	<i>Thomomys talpoides</i>	-	3	90.60	1.01	0.41	0.65	0.56	Hafner and Hafner 1984	converted to mass	1.06

TABLE S3. (Continued)

Suborder	Specimen #	Taxon	Sex	Number of specimens	Body mass (g)	Brain mass (g)	EQ Jerison (1973)	EQ Eisenberg (1981)	EQ Pilleri et al. (1984)	References	Brain mass or converted volume in mass	Volume (mL)
Castorimorpha Geomyidae	426	<i>Zygogeomys trichopus</i>	-	3	545.00	3.63	0.44	0.62	0.64	Hafner and Hafner 1984	converted to mass	3.81
	427	<i>Dipodomys deserti</i>	-	8	114.70	1.60	0.56	0.87	0.76	Hafner and Hafner 1984	converted to mass	1.68
	428	<i>Dipodomys heermanni</i>	-	10	71.30	1.38	0.66	1.06	0.90	Hafner and Hafner 1984	converted to mass	1.45
	429	<i>Dipodomys merriami</i>	-	10	41.00	1.06	0.73	1.22	0.98	Hafner and Hafner 1984	converted to mass	1.11
	430	<i>Dipodomys microps</i>	-	10	65.70	1.12	0.57	0.92	0.77	Hafner and Hafner 1984	converted to mass	1.18
	431	<i>Dipodomys ordii</i>	-	4	60.20	1.39	0.74	1.21	1.00	Hafner and Hafner 1984	converted to mass	1.46
	432	<i>Dipodomys panamintinus</i>	-	8	74.00	1.47	0.68	1.10	0.93	Hafner and Hafner 1984	converted to mass	1.54
	433	<i>Dipodomys spectabilis</i>	-	9	146.60	1.98	0.58	0.89	0.81	Hafner and Hafner 1984	converted to mass	2.08
	434	<i>Heteromys desmarestianus</i>	-	6	77.10	1.08	0.49	0.78	0.66	Hafner and Hafner 1984	converted to mass	1.13
	435	<i>Liomys irroratus</i>	-	5	57.70	0.97	0.53	0.87	0.72	Hafner and Hafner 1984	converted to mass	1.02
	436	<i>Liomys pictus</i>	-	9	40.20	0.71	0.50	0.84	0.67	Hafner and Hafner 1984	converted to mass	0.75
	437	<i>Perognathus flavus</i>	-	10	8.00	0.29	0.59	1.11	0.75	Hafner and Hafner 1984	converted to mass	0.30
	438	<i>Perognathus longimembris</i>	-	6	8.00	0.30	0.61	1.15	0.78	Hafner and Hafner 1984	converted to mass	0.31
	439	<i>Perognathus parvus</i>	-	7	17.30	0.45	0.55	0.98	0.72	Hafner and Hafner 1984	converted to mass	0.47
	440	<i>Perognathus parvus</i>	F	1	17.00	0.58	0.72	1.29	0.94	Pilleri, 1960	mass	
	441	<i>Microdipodops megacephalus</i>	-	8	13.60	0.48	0.69	1.25	0.89	Hafner and Hafner 1984	converted to mass	0.50
	442	<i>Microdipodops pallidus</i>	-	10	12.90	0.50	0.76	1.38	0.98	Hafner and Hafner 1984	converted to mass	0.53
	443	<i>Chaetodipus hispidus</i>	-	10	35.20	0.63	0.48	0.82	0.64	Hafner and Hafner 1984	converted to mass	0.66
	444	<i>Chaetodipus baileyi</i>	-	10	31.20	0.62	0.51	0.88	0.68	Hafner and Hafner 1984	converted to mass	0.65
	445	<i>Chaetodipus californicus</i>	-	10	26.00	0.57	0.54	0.93	0.71	Hafner and Hafner 1984	converted to mass	0.60
	446	<i>Chaetodipus fallax</i>	-	9	20.30	0.50	0.55	0.97	0.72	Hafner and Hafner 1984	converted to mass	0.52
	447	<i>Chaetodipus formosus</i>	-	10	15.30	0.41	0.55	0.98	0.71	Hafner and Hafner 1984	converted to mass	0.43
	448	<i>Chaetodipus penicillatus</i>	-	10	16.50	0.42	0.53	0.95	0.70	Hafner and Hafner 1984	converted to mass	0.44
	449	<i>Chaetodipus spinatus</i>	-	8	19.10	0.44	0.51	0.89	0.66	Hafner and Hafner 1984	converted to mass	0.46
Sciuromorpha Sciuridae	450	<i>Sciurus carolinensis</i> AMNH 258346	F	1	437.91	7.67	1.09	1.54	1.55	Present study	converted to mass	8.05
Ischyromyidae	451	<i>Ischyromys typus</i> ROM 1007	-	1	1401.80	5.31	0.35	0.45	0.51	Present study	converted to mass	5.58
	452	<i>Ischyromys typus</i> AMNH 12252	-	1	1086.42	5.65	0.44	0.58	0.64	Present study	converted to mass	5.93
	453	<i>Ischyromys typus</i> AMNH F:AM 144836	-	1	1109.01	6.93	0.53	0.70	0.77	Present study	converted to mass	7.28

REFERENCES

- Anthony, R. 1928. Leçons sur le Cerveau: Encéphale envisagé dans son Ensemble. Télencéphale. Doin, Paris, France, 359 pp.
- Bernard, R. T. F. and J. Nurton. 1993. Ecological correlates of relative brain size in some South African rodents. *South African Journal of Zoology* 28:95–98.
- Brauer, K., and W. Schober. 1970. Katalog der Säugetiergehirne. Catalogue of Mammalian Brains. Veb Gustav Fischer Verlag, Jena, Germany.
- Brummelkamp, R. 1939. Das Wachstum der gehirnmasse mit kleinen cephalisierungssprüngen (sog. V₂-sprüngen) bei den rodentien. *Acta Neerlandica Morphologiae und Pathologicae* 2:188–194.
- Campos, G. B., and W. I. Welker. 1976. Comparisons between brains of a large and a small hystricomorph rodent: capybara, *Hydrochaeris* and guinea pig, *Cavia* – neocortical projection regions and measurements of brain subdivisions. *Brain, Behavior and Evolution* 13:243–266.
- Compoint-Monmignaut, C. 1973. L'encéphalisation chez les rongeurs. *Comptes rendus hebdomadaires des Séances de l'Académie des Sciences Paris (D)* 277:861–863.
- Crile, G., and D. P. Quiring. 1940. A record of the body weight and certain organ and gland weights of 3690 animals. *Ohio Journal of Science* 40:219–260.
- Eisenberg, J. F. 1981. *The Mammalian Radiations: an Analysis of Trends in Evolution, Adaptation, and Behavior*. University of Chicago Press, Chicago, Illinois, 610 pp.
- Gingerich, P. D., and G. F. Gunnell. 2005. Brain of *Plesiadapis cookei* (Mammalia, Proprimates): surface morphology and encephalization compared to those of Primates and Dermoptera. *Contributions from the Museum of Paleontology. University of Michigan* 31:185–195.
- Hafner, M. S., and J. C. Hafner. 1984. Brain size, adaptation and heterochrony in geomyoid rodents. *Evolution* 38:1088–1098.
- Hofman, M. A. 1983. Encephalization in hominids: Evidence for the model of punctuationalism. *Brain Behavior Evolution* 122:102–117.
- Iwaniuk, A. N. 2001. Interspecific variation in sexual brain size dimorphism in Nearctic ground squirrels (*Spermophilus spp.*). *Canadian Journal of Zoology* 79:759–765.
- Jerison, H. J. 1973. *Evolution of the Brain and Intelligence*. Academic Press, New York, New York, 482 pp.
- King, J. 1965. Body, brain, and lens weights of *Peromyscus*. *Zoologische Jahrbücher Abteilung für Anatomie und Ontogenie der Tiere* 82:177–188.
- Nikitenko, M. F. 1966. On the brain structure of the beaver in relation to peculiarities of its mode of life and evolution. *Zoologicheskyy Zhurnal Moskva* 45:261–274.
- Mangold-Wirz, K. 1966. Cerebralisation und ontogenesemodus bei eutherien. *Cells Tissues Organs* 63:449–508.
- Mace, G. M., P. H. Harvey and T. H. Clutton-Brock. 1981. Brain size and ecology in small mammals. *Journal of Zoology* 193:333–354.
- Martin, R. D. 1990. *Primate Origins and Evolution: a Phylogenetic Reconstruction*. Chapman and Hall, London, 804 pp.
- Müller, G. von, M. Nicht, and H. Kuhne. 1969. Organgewichte von *Gerbillus pyramidum* Geoffroy 1825. *Zeitschrift für Versuchstierkunde* 11:123–135.
- Orliac, M. J., S. Ladevèze, P. D. Gingerich, R. Lebrun, and T. Smith. 2014. Endocranial morphology of Palaeocene *Plesiadapis tricuspidens* and evolution of the early primate brain. *Proceedings of the Royal Society B: Biological Sciences* 281:2013–2792.
- Pilleri, G. 1959. Beiträge zur vergleichenden morphologie des nagetiergehirnes. L. Beitrag: Sciuromorpha. *Acta Anatomica Supplementum* 38:1–42.
- Pilleri, G. 1960a. Zentralnervensystem, körperorgane und stammesgeschichtliche verwandtschaft der *Aplodontia rufa* rafinesque (Rodentia, Aplodontoidea). *Acta Anatomica Supplementum* 41:5–35.
- Pilleri, G. 1960b. Vergleichend-morphologische untersuchungen über das zentralnervensystem nearktischer Sciuromorpha und bemerkung zum problem hirnforn und taxonomie. *Acta Anatomica* 41:36–68.
- Pilleri, G. 1960c. Über das zentralnervensystem von *Heterocephalus glaber* (Rodentia, Bathyergidae). *Acta Zoologica*. 41:101–111.
- Pilleri, G. 1963. Über das gehirn von *Castor fiber* und vergleichend-anatomische betrachtungen mit dem gehirn von *Castor canadensis* (Rodentia). *Journal für Hirnforschung* 6:65–70.
- Pilleri, G., M. Gahr, and C. Kraus. 1984. Cephalization in rodents with particular reference to the Canadian beaver (*Castor canadensis*); pp. 11–102 in G. Pilleri (ed.), *Investigations on Beavers*. Brain Anatomy Institute, Berne, Switzerland.
- Pirlot, P., and T. Kamiya. 1982. Relative size of brain and brain components in three gliding placentals (Dermoptera; Rodentia). *Canadian Journal of Zoology* 60:565–572.
- Roth, V. L., and R. W. Thorington. 1982. Relative brain size among African squirrels. *Journal of Mammalogy* 63:168–173.
- Sacher, G. A., and E. F. Staffeldt. 1974. Relation of gestation time to brain weight for placental mammals: implications for the theory of vertebrate growth. *American Naturalist* 108:593–615.
- Silcox, M. T., C. K. Dalmyn, and J. I. Bloch. 2009. Virtual endocast of *Ignacius graybullianus* (Paromomyidae, Primates) and brain evolution in early Primates. *Proceedings of the National Academy of Sciences USA* 106:10987–10992.
- Silcox, M. T., A. E. Benham, and J. I. Bloch. 2010. Endocasts of *Microsyops* (Microsyopidae, Primates) and the evolution of the brain in primitive primates. *Journal of Human Evolution* 58:505–521.
- Silcox, M. T., C. K. Dalmyn, A. Hrenchuk, J. I. Bloch, D. M. Boyer, and P. Houde. 2011. Endocranial morphology of *Labidolemur kayi* (Apatemyidae, Apatotheria) and its relevance to the study of brain evolution in Euarchontoglires. *Journal of Vertebrate Paleontology* 31:1314–1325.
- Stephan, H., and F. Dieterlen. 1982. Relative brain size in Muridae with special reference to *Colomys goslingi*. *Zeitschrift für Säugetierkunde* 47:38–47.
- Warneke, P. 1908. Mitteilungen neuer gehirn- und körpergewichtsbestimmungen bei säugern, nebst zusammenstellung der gesamten bisher beobachteten absoluten und relativen gehirngewichte bei den verschiedenen species. *Journal für Psychologie und Neurologie* 13:355–403.
- Weidemann, W. 1967. Vergleichende untersuchungen an gehirnen südamerikanischer nagetiere. *Zeitschrift für Wissenschaftliche Zoologie* 181:67–187.