

Appendix 1. Lens growth logistic analysis and species information.

Species		Gestation period days	Life span years	Body wt maximum Kg	<u>Lens dry wt logistic</u>		<u>Lens wet wt logistic</u>		Lenses or data n	Data source
					Lens wt maximum mg	Slope days	Lens wt maximum mg	Slope days		
Primates										
baboon	<i>Papio hamadryas</i>	183	45	30	55	167	178	124	16	PS
cynomolgus	<i>Macaca fascicularis</i>	180	38	5	40	130	125	162	60	PS
howler monkey	<i>Alouatta caraya</i>	185	20	8	34	220			228	[8]
human prenatal	<i>Homo sapiens</i>	270	115	5	45	359	198	244	608	PS
tree shrew	<i>Macaca mulatta</i>	165	38	12	60	125	188	108	50	PS
	<i>Tupaia glis</i>		12	0.15	28	76	63	63	32	PS
Ungulates										
African elephant	<i>Loxodonta a africana</i>	659	80	5000	475	935			561	[9,10]
giraffe	<i>Giraffa camelopardalis</i>	460	35	2000	1163	571			34	[11]
hippopotamus	<i>Hippopotamus amphibius</i>	250	55	3000	410	362			360	[12]
Spanish Ibex	<i>Capra pyrenaica Schinz</i>	180	12	120	711	508			80	[13]
Wood buffalo	<i>Bison bison</i>	280	25	1000	1288	525			97	[14]
cow (Australia)	<i>Bos taurus</i>	280	30	600	1483	400	3162	302	231	[15]
cow (Europe)	<i>Bos taurus</i>	280	30	400	1122	401	2754	302	630	[16,17]
zebra	<i>Equus burchelli antiquorum</i>	370	40	350	1085	436			102	[18]
gnu (wildebeest)	<i>Connochaetes taurinus</i>	257	21	275	1047	362			94	[19]
sheep	<i>Ovis aries</i>	160	20	100	646	311	1622	239	1224	[20,21]
pig	<i>Sus scrofa</i>	115	25	80	364	277	736	254	92	PS
wild boar	<i>Sus scrofa</i>	115	20	84	389	309			113	[22,23]
Gottingen minipigs	<i>Sus scrofa</i>	114	17	35			646	211	100	[24]
goat	<i>Capra hircus L</i>	150	20	70	447	267			91	[25]
pronghorn antelope	<i>Antilocapra americana</i>	235	12	75	871	365			24	[26]
black tail deer	<i>Odocoileus hemionus columbianus</i>	150	15	200	676	357			116	[27,28]
greater kudu	<i>Tragelaphus strepsiceros</i>	240	25	300			3412	485	50	[29]
hog deer	<i>Axis porcinus</i>	240	20	55	514	371			220	PS
Hyrax	<i>Procavia capensis</i>	180	12	6	145	417			200	[30]
impala	<i>Aepyceros melampus</i>	200	17	60	794	295			19	[31]
mule deer	<i>Odocoileus hemionus hemionus</i>	200	15	150	708	335			213	[32]
red deer	<i>Cervus elaphus L</i>	250	27	250	917	600			19	[33]
roe deer	<i>Capreolus capreolus L</i>	150	15	30	373	212			35	[33]
sika	<i>Cervus nippon</i>	220	15	70	646	390			100	[34]
springbok	<i>Antidorcas marsupialis</i>	180	17	45	513	253			304	[35]

warthog	<i>Phacochoerus africanus</i>	170	19	150	257	386			152	[36,37]
white tail	<i>Odocoileus virginianus</i>	200	23	45	617	380			56	[38]
Chiroptera										
guano bat	<i>Tadarida brasiliensis mexicana</i>	80	12	0.014	1	54			800	[39]
grey headed flying fox	<i>Pteropus poliocephalus</i>	189	23	1.2	263	424			45	PS
Carnivores										
American mink	<i>Mustela vison Shreiber</i>	39	10	1.6	285	228			321	[40]
blackbacked jackal	<i>Canis mesomelas Schreber</i>	63	16	15	263	175			54	[41]
beagle	<i>Canis familiaris</i>	65	15	15			692	106	58	[42]
cat	<i>Felis silvestris</i>	61	15	8	316	159	832	130	80	[43],PS
dingo	<i>Canis lupis</i>	63	14	15	302	197			185	[44]
gray fox	<i>Urocyon cinereoargenteus</i>	53	13	7	232	151			24	[45,46]
Northern fur seal; female	<i>Callorhinus ursinus</i>	240	30	50	1763	517			96	[47]
Northern fur seal, male	<i>Callorhinus ursinus</i>			250	1922	525			47	[47]
raccoon	<i>Procyon lotor</i>	66	22	15	174	203			118	[48]
red fox	<i>Vulpes vulpes</i>	50	12	6	275	105			12	[49]
wolverine	<i>Gulo gulo</i>	30	13	30	87	262			18	[50]
Lagomorphs										
cotton tail rabbit	<i>Sylvilagus floridanus</i>	32	9	3	290	116			267	[51,52]
European rabbits	<i>Oryctolagus cuniculus</i>	32	9	2.5	276	119	644	92	710	[9,53-57]
arctic hare	<i>Lepus arcticus</i>	35	14	4.5	339	114			33	[58]
Blacktailed jack rabbit	<i>Lepus californicus</i>	42	7	2.5	380	121			46	[59,60]
European hare	<i>Lepus europaeus</i>	42	12	5	388	121			88	[61-63]
Japanese hare	<i>Lepus brachyurus</i>	41	9	3	269	115			39	[64]
mountain hare	<i>Lepus timidus</i>	50	9	5	331	119			500	[65]
snowshoe hare	<i>Lepus americanus</i>	40	9	2	251	114			183	[66,67]
Rodents										
woodchuck	<i>Marmota monax L</i>	32	6	6	24	74			14	[68,69]
beaver	<i>Castor canadensis</i>	107	25	30	51	344			150	[70,71]
Cape porcupine	<i>Hystrix africaeaeustralis</i>	95	18	24	233	240			180	[72]
chipmunk	<i>Tamias amoenus</i>	30	7	0.12	8	59			9	[73]
fox squirrel	<i>Sciurus niger</i>	26	13	1.3	54	101			13	[74]
red squirrel	<i>Tamiasciurus hudsonicus</i>	33	8	0.3	24	61			17	[75]
gray squirrel	<i>Sciurus carolinensis</i>	44	12	0.7	47	93			7	[76]
daurian ground squirrel	<i>Spermophilus dauricus</i>	35	4	0.3	40	171			>3000	[77]
garden dormouse	<i>Eliomys quercinus</i>	23	5	0.15	37	84			6	[78]
black tailed prairie dog	<i>Cynomys ludovicianus</i>	34	6	1.4	21	103			431	[79]
guinea pig	<i>Cavia porcellus</i>	65	15	0.75			135	101	177	[80]

cotton rat	<i>Sigmodon hispidus</i>	27	5	0.3	28	79	54	67	425	[81,82]
black rat	<i>Rattus rattus</i>	21	5	0.28	40	76			256	[83]
Sprague-Dawley	<i>Rattus norvegicus</i>	21	4	0.4	32	77	62	62	137	[84]
Norway rat (Wistar)	<i>Rattus norvegicus</i>	21	4	0.45	34	82	68	63	190	[85-87]
Royal College of Surgeons rat	<i>Rattus norvegicus</i>	21	4	0.4			63	64	123	PS
Austlong haired	<i>Rattus villosissimus</i>	23	4	0.3	36	68	59	49	85	[88]
Aust bush rat	<i>Rattus fuscipes</i>	23	4	0.3	39	66	63	49	155	[88]
Polynesian rat	<i>Rattus exulans</i>	21	2	0.08	16	55			46	[89]
Rice field rat	<i>Rattus argentiventer</i>	23	2	0.2	25	70			139	[90]
Unstriped Nile grass rat	<i>Arvicanthis niloticus</i>	23	6	0.12	18	78			8	[91]
Hubert's multimammate mouse	<i>Mastomys huberti</i>	23	5	0.1	19	82			6	[91]
Guinea multimammate mouse	<i>Mastomys erythroleucus</i>	23	5	0.1	17	66			5	[91]
Natal multimammate mouse	<i>Mastomys natalensis</i>	23	5	0.1	18	74			167	[92]
coypus	<i>Myocastor coypus</i>	135	12	7	107	313			105	[93]
muskrat	<i>Ondatra zibethicus</i>	29	10	2	19	97			36	[94]
Balb/c mouse	<i>Mus musculus</i>	21	6	0.025	6	55	10	50	600	[95,96]
field mouse	<i>Mus musculus</i>	21	6	0.025	5	49			390	[97]
house mouse	<i>Mus musculus domesticus</i>	21	6	0.025	5	51			181	[98]
yellownecked mouse	<i>Apodemus flavicollis</i>	25	2	0.045	13	48			10	[99,100]
striped mouse	<i>Apodemus agrarius</i>	25	2	0.05	8	108			1210	[101]
wood mouse	<i>Apodemus sylvaticus</i>	25	2	0.05	16	68			136	[102,103]
corn mouse	<i>Calomys musculinus</i>	1	2	0.025	16	56			322	[104]
small vesper mouse	<i>Calomys laucha</i>	25	5	0.04	8	65			74	[105]
deer mouse	<i>Peromyscus maniculatus</i>	22	7	0.035	12	53			48	[106]
whitefooted mouse	<i>Peromyscus leucopus</i>	22	8	0.05	15	53			69	[106]
Senegal gerbil	<i>Taterillus pygargus</i>	23	5	0.2	45	77			>5	[91]
Shaw's jird (a gerbil)	<i>Meriones shawi</i>	25	4	0.1	60	84			56	[107]
Small Egyptian gerbil	<i>Gerbillus gerbillus</i>	22	8	0.025	25	53			4	[91]
Indian gerbil	<i>Tatera indica</i>	26	4	0.08	116	131	183	119	32	[108]
European common vole	<i>Microtus arvalis</i>	24	3	0.05	3	73			8	[109-111]
meadow vole	<i>Microtus pennsylvanicus</i>	21	1	0.5	3	69			217	[112]
Mediterranean pine vole	<i>Microtus duodecimcostatus</i>	21	3	0.025	2	52			76	[113]
montane vole	<i>Microtus montanus</i>	21	1	0.07	4	69			517	[114]
root vole	<i>Microtus oeconomus</i>	20	2	0.05	3	56			46	[115]
Woodland pine vole	<i>Microtus pinetorum</i>	21	2	0.06	3	74			124	[114]
bank vole	<i>Clethrionomys glareolus</i>	21	1	0.05	5	57			39	[116]
redbacked vole	<i>Clethrionomys rutilus</i>	18	2	0.05	5	43			228	[117,118]
redbacked Smith's vole	<i>Eothenomys smithii</i>	19	3	0.05	5	47			65	[119]
Norway lemming	<i>Lemmus lemmus</i>	21	2	0.07	2	52			144	[120]
Siberian lemming	<i>Lemmus subiricus</i>	21	2	0.08	4	85			10	[121]
Collared lemming	<i>Lemmus groenlandecus</i>	21	2	0.07			12	57	112	[122]

Marsupials

fat tailed dunnart	<i>Sminthopsis crassicaudata</i>	13	5	0.025	18	164	31	125	170	PS
stripe faced dunnart	<i>Sminthopsis macroura</i>	11	5	0.025	14	151	33	147	49	PS
koala	<i>Phascolarctos cinereus</i>	35	20	8	75	319	273	259	55	PS
red kangaroo	<i>Macropus rufus</i>	33	15	80	609	316	1445	289	40	[6,123,124]
western grey kangaroo	<i>Macropus fuliginagus</i>	33	15	65	482	313	1175	276	476	[6,123,124]
eastern grey kangaroo	<i>Macropus giganteus</i>	36	20	65	479	326	1380	299	57	[6,123,124]
Tammar Wallaby	<i>Macropus eugenii</i>	28	14	8	240	275	513	236	142	PS
brushtail possum	<i>Trichosurus vulpecula</i>	17	7	4.5	193	246	366	233	7	[125]
long nosed bandicoot	<i>Perameles nasuta</i>	12.5	3	1.2	164	128	263	88	7	[125]

Birds

bobwhite quail	<i>Colinus virginianus</i>	18	5	0.5	10	33			196	[126]
chicken	<i>Gallus domesticus</i>	21	15	3	45	73	168	72	150	[78,127,128]
chukar partridge	<i>Alectoris chukar</i>	23	5	0.75	31	47			160	[129]
house sparrow	<i>Passer domesticus</i>	12	10	0.035	7	20			50	[130]
mallard	<i>Anas platyrhynchos</i>	28	20	3	43		158	27	59	[131],PS
pheasant female	<i>Phasianus colchicus</i>	25	2	2	31	57			22	[132,133]
pheasant male	<i>Phasianus colchicus</i>			1.5	38	58			22	[132,133]
rock dove	<i>Columba livia</i>	18	15	0.4	25	40			45	[134]
snow goose	<i>Chen Caerulescens</i>	30	25	3.5	268	72			36	[136]

Reptiles

salt water crocodile	<i>Crocodylus porosus</i>	122	100	1200	209	585	1047	584	105	PS
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Amphibians

bullfrog	<i>Rana catesbeiana</i>	10	10	0.7	35	1102			125	[137]
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Fish

brown banded bamboo shark	<i>Chiloscyllium punctatum.</i>	125	30	5	301	520			21	PS
carp	<i>Cyprinus carpio L.</i>	1	40	40	145	1073			26	[138,139]
spiny dogfish	<i>Squalus acanthias</i>	670	100	6			893	2079	34	[140]
smooth dogfish	<i>Mustelis canis</i>	1	20	12	766	1347	1459	1117	29	[141]
drum	<i>Aplodinotus grunniens</i>	1	70	30	55	167	203	1137	12	[142]
			45	30	40	130	178	124	16	PS

PS; present study