

Riverview Park and Zoo: How body size affects the popularity of mammalian exhibits

Connor Jones (0554561) w/ Sydney Bainbridge (0554990)

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Joanna Zigouris

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ABSTRACT

Regardless of increasing levels of species extinction, the depth of knowledge about the factors affecting humanity's inclination to safeguard biodiversity remain insufficient. This study investigates the role of body size on the affects of human response/popularity by analysing the difference in number of visitors and their length of stay per enclosure. The results were compared between that of large and small mammal species at the Riverview Park & Zoo. Comparing average quantity of visitors per enclosure, it was evident that smaller species dominated while the opposite trend was seen in length of guest visitation per enclosure. Thus, depicting two contrasting trends that supports our hypothesis that states that body size affects the quantity and duration of visitors exhibited at each enclosure. Further studies regarding the role of body size and its affect on human response should keep these contrasting trends in mind. For these opposing trends are not in full congruency with predictions. Therefore, giving way to an alternative hypothesizes that could fully validate the trend exhibited in our preliminary results.

INTRODUCTION

In spite of increasing efforts to diminish the world's growing count of extinct species, the demand to preserve this world's biodiversity is inadequate. With limited research concerning the factors that influence a society's inclination to act accordingly (in regards to the need to conserve biodiversity), it is believed that physical characteristics are the most distinguishing (Knegtering et al. 2011). A species body size is one of the most prevalently noticeable of all these characteristics. Therefore, species body size is correspondingly considered to be a vital factor that affects human response. Previous studies (Knegtering et al. 2011) have argued about the effects of species body

size on the outcome of human response/popularity, in which larger animals have been recorded to more preferred.

Further studies (Kellert, 1980) have also note that larger species contribute more positively (than that of smaller species) to the level of an individual's concern for the well-being of a species. Consequently, these results are alarming, as species of smaller stature make up a majority of the world's biodiversity and need to be more supported to replenish species numbers. Therefore, this study attempts to utilize visitor patterns at the Riverview Park & Zoo (Peterborough, ON) to determine whether or not the popularity of zoo species is correlated to their body size. In which it was hypothesized that body size affects the quantity and duration of visitors exhibited at each enclosure. Based upon previous studies (Bitgood et al. 1988), it was then predicted that larger species would accumulate more visitors and a longer duration of visit.

METHODS

The popularity of large and small species of mammals was assessed at the Riverview Park & Zoo (Peterborough, ON) over the course of three separate occasions (November, 5, November 6 and November 13). Six distinctive mammals were selected, in which there were three smaller species (*Macropus rufogriseus*, *Suricata suricatta siricata*, and *Saimiri sciureus sciureus*) and three larger species (*Bos grunniens*, *Ammotragus lervia*, and *Rangifer tarandus*). Data was subsequently collected during the afternoon (12:00pm-2:00pm) on weekends, as it was thought to be the Zoo's busiest time. Visitors were observed at each enclosure over the course of a 30-minute interval. Each visitor's time of arrival and entrance was then noted, along with their sex and age.

The data was then analyzed by first converting the recorded times (in minutes) of each datum to seconds. From which, the data was then able to be manipulated in such a manor that the average duration of visitation was then calculated for all data sets and that of both sex (Male/Female) and age (Adult/Child). This average was then compared based upon size of species (Small vs. Large). The average number of visitors was also calculated and compared between large and small species for all data sets and that of both sex (Male/Female) and age (Adult/Child). Subsequent values were then applied to a two-way T-test to establish a T-critical value, along with the correlation between the two variables.

RESULTS

Taking into account the average quantity of visitors per day (Fig. 1), it was evident that the most popular species were the meerkats (*Saimiri sciureus sciureus*), followed by the reindeer (*Rangifer tarandus*).

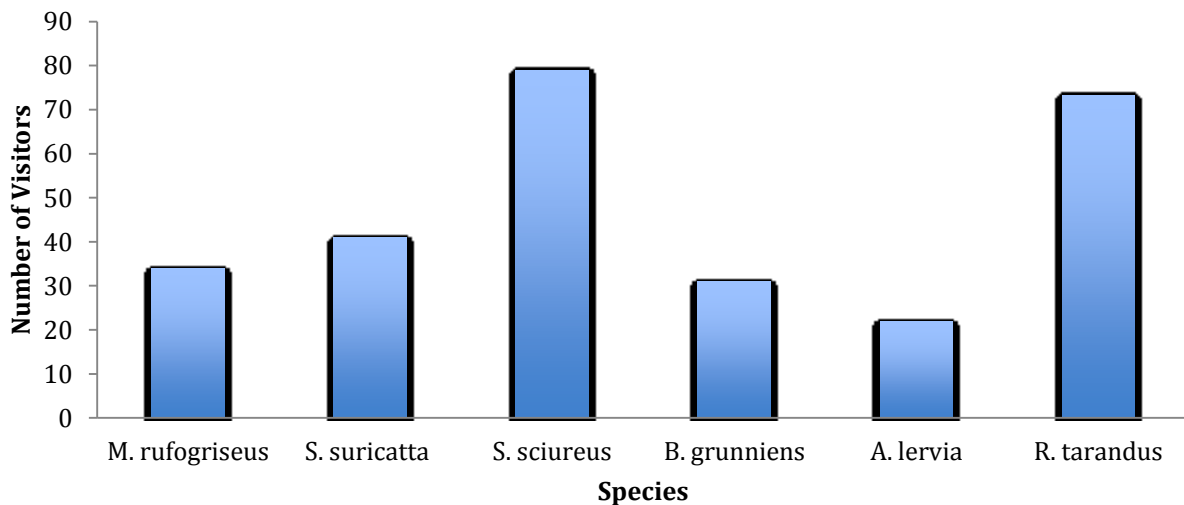


Figure 1. Average number of visitors observed at each selected species (large or small) enclosure within the Riverview Park and Zoo (November 2016).

While in contrast, the most popular species when regarding the account average duration of guest's visitation (Fig. 2) were the mountain sheep (*Ammotragus lervia*) and muskox (*Bos grunniens*).

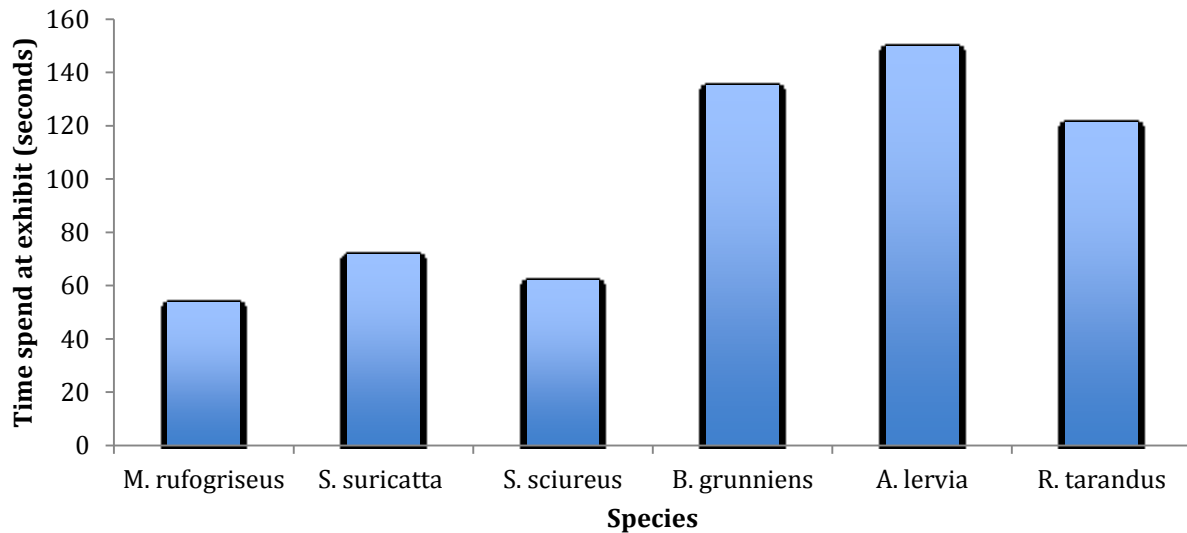


Figure 2. Average time visitors were recorded to spend at each selected species (large or small) enclosure at the Riverview Park & Zoo (November 2016).

Furthermore, it was evident that the larger species possessed an overall greater average of guest visitation length when comparing sex and age (Fig. 3).

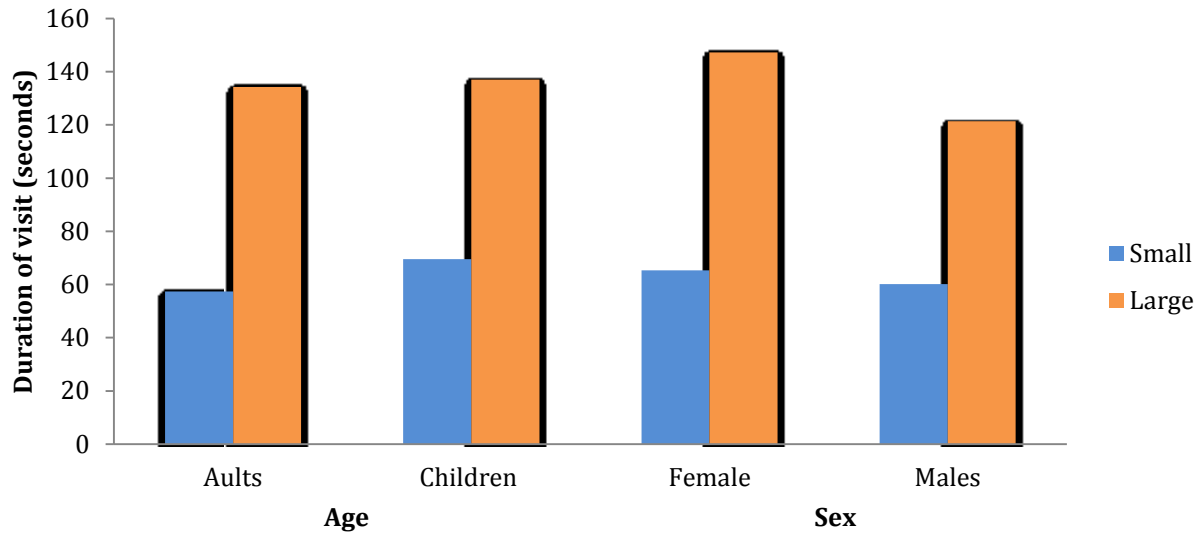


Figure 3. Comparison of the average times of guest visitation between large and small species, in regards to both age and sex.

Controversially, the smaller species of animals have been recorded to possess the highest average of guests (at said enclosure) when comparing data based on sex (Fig. 4) and age (Fig. 5).

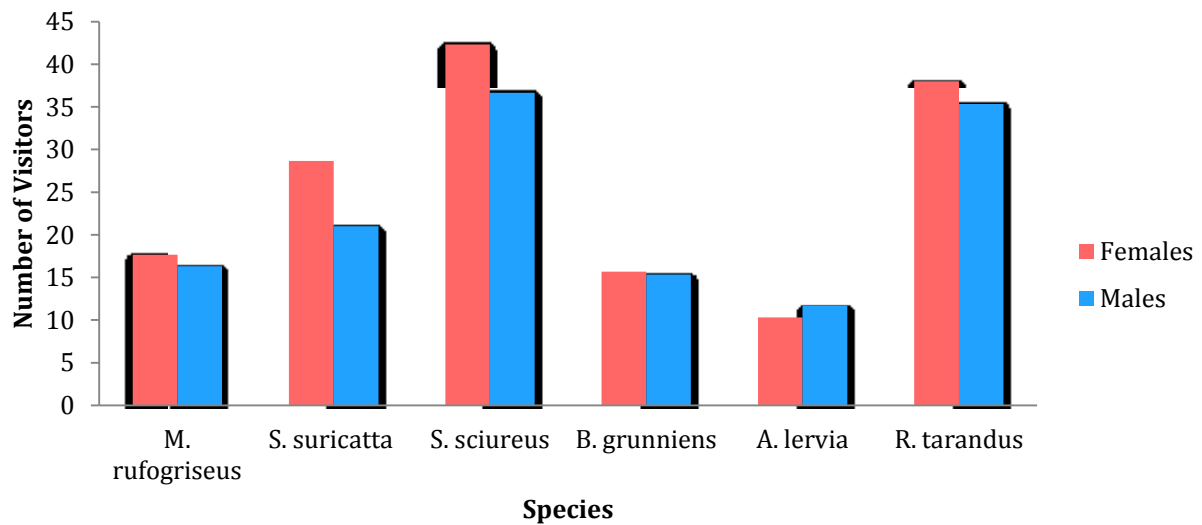


Figure 4. Comparison of the effects of sex on the average number of guests per enclosure exhibited between small and large species within the River Park and Zoo (November 2016).

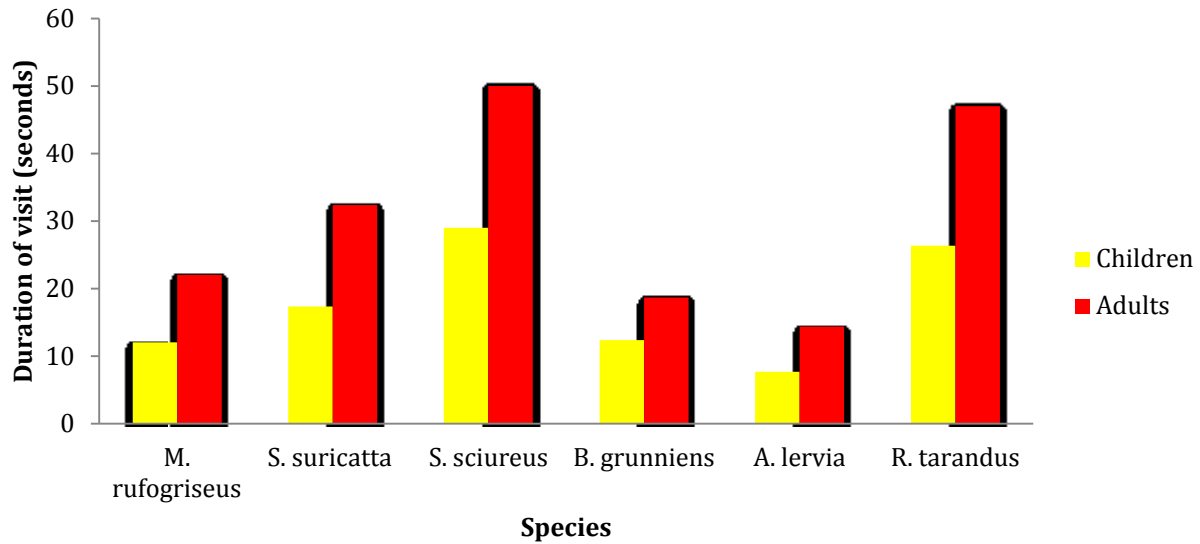


Figure 5. Comparison of the effects of age on the average number of guests per enclosure exhibited between small and large species within the River Park and Zoo (November 2016).

Once the data was effectively grouped and compared, a two-way T-test was applied to each data set (i.e. all data, males, females, adults, and children). The results were summarized (Table 1), in which there were statistical significance between large and small species for each factor recorded.

Table 1: Summary table depicting the values giving from running a two-way T-test between all data sets, sex, and age.

	All data	Males	Females	Adults	Children
Ave diff or d	73.95	61.16	81.90	61.69	67.48
Var	168.14	3.97	393.25	645.54	103.07
SD	12.97	1.99	19.83	25.41	10.15
SE	7.49	1.15	11.45	14.67	5.86
T	9.88	53.17	7.15	4.21	11.51
TCRIT	0.01	0.002	0.02	0.05	0.006

N	3				
df	2				

DISCUSSION

Based upon these results, it is evident that our hypothesis, which stated that body size, affects the quantity and duration of visitors exhibited at each enclosure, was validated. For there was evidence that supports our trend that larger species exhibit an overall longer duration of guests visiting their enclosure. Similar results are found in previous studies, in which larger various other large species were recorded to have higher duration of guest visitation (Moss et al. 2008). Contrastingly, our prediction that states the number of visitors would be higher for large animals was not supported. This leaves us to believe that there is a corresponding trend between body size and human response, but in a disproportionate manor from which we predicted.

A similar study was conducted in the US, in which 13 zoos cooperated in an integrated study that compared/examined the relationship between body size and duration of visitors staying (Bitgood et al. 1988). It was determined that pachyderms possessed the highest duration of visitors staying, followed by a variety animals pertaining to both large and small species. Hoofed animals were regarded to possess the lowest duration of visitors staying due to their limited activity. Thus, potentially explaining the similar visitor numbers recorded in *Macropus rufogriseus* to that of larger animals species. For the *Macropus rufogriseus* was noted to be sparsely active and difficult to observe from the fencing of the enclosure. We propose that this behavior may have been attributed to the decline in temperature as seasons change (i.e. Summer to Fall).

Additional implications can be inferred from this study, as some species examined shared an enclosure with other species (ex. *Suricata suricatta* shared an enclosure with a Folivora enclosure) Hence, difficulties in distinguishing which guests were visiting which enclosure. Therefore, leading to an inaccurate/bias accumulation of data. A similar case was seen when observing the *Ammotragus lervia*, as their enclosure were located directly beside that of the camels and could therefore explain as to how the *Ammotragus lervia* accumulated the highest average length of visitation.

Furthermore, in comparison to other large species, the *Rangifer tarandus* exhibited an abnormal high number of visitors. A possible reason for this may correspond to the fact that *Rangifer tarandus* enclosure was located in the central premises of the zoo. As a result, visitors were required to pass by and view the enclosure to gain access and view other species enclosures. Other aspects that may have influenced our results could be factors such as how a group (family, couple, friends, etc.) responds differently to species (in regards to length of visit).

Additional research should then take into account these social dynamics affecting visitor behavior at zoos. For zoos aim to generate more attention towards biodiversity through generating more attention to their animals on display. By conducting further research, zoos can obtain a greater measure of the effects that certain animals have on guest behavior, as well as the effects that body size has on guest behavior.

REFERENCES

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APPENDIX

Table 1: Raw data of *M. rufogriseus* observations, obtained at the Riverview Park and Zoo (Nov. 2016)

Visitor Number	Day1				Day2				Day3						
	ArriveTime	LeaveTime	ViewingTime	Age/adult/child	Sex(M/F)	ArriveTime	LeaveTime	ViewingTime	Age/adult/child	Sex(M/F)	ArriveTime	LeaveTime	ViewingTime	Age/adult/child	Sex(M/F)
1	184	200	16	Adult	M	25	71	46	a	F	3	107	104	c	F
2	184	200	16	Adult	F	25	71	46	a	F	3	107	104	c	M
3	270	275	5	Adult	M	25	71	46	a	F	3	107	104	a	F
4	270	275	32	Child	F	242	285	43	c	M	3	107	104	a	M
5	448	480	32	Child	M	242	285	43	c	M	69	154	85	c	F
6	448	480	32	Child	F	242	285	43	c	M	69	154	85	a	M
7	448	480	32	Child	F	242	348	106	a	M	69	154	85	a	F
8	448	480	32	Adult	M	242	348	106	a	F	236	282	46	a	F
9	448	480	32	Adult	M	300	330	30	a	F	236	282	46	a	F
10	618	637	19	Adult	F	300	330	30	c	M	271	313	42	a	F
11	618	637	19	Adult	F	387	395	8	c	M	271	313	42	a	M
12	1563	1606	43	Child	M	387	395	8	a	M	346	375	29	a	F
13	1563	1610	47	Child	M	549	600	51	c	M	522	602	80	a	M
14	1563	1610	47	Adult	M	549	600	51	a	F	522	602	80	c	F
15	1563	1610	47	Adult	M	588	700	112	a	F	522	602	80	c	M
16	1690	1800	110	Adult	F	588	700	112	a	F	522	602	80	c	M
17	1690	1800	110	Child	F	588	700	112	a	M	522	602	80	a	F
18	1690	1800	110	Child	M	588	700	112	a	F	522	602	80	c	M
19						588	700	112	a	F	624	638	14	a	F
20						661	709	48	a	M	624	638	14	a	F
21						661	709	48	c	M	624	638	14	a	M
22						714	790	76	a	F	636	679	43	c	M
23						714	790	76	a	M	636	679	43	c	M
24						766	793	27	a	M	636	679	43	c	M
25						766	793	27	c	F	636	679	43	a	F
26						999	1080	81	a	F	694	711	17	a	M
27						999	1080	81	a	M	710	781	71	a	M
28						999	1080	81	c	F	765	850	85	c	F
29						999	1080	81	c	F	765	850	71	c	M
30						999	1080	81	a	F	765	850	85	a	F
31						1048	1106	58	a	F	1052	1123	71	c	M
32						1048	1106	58	a	M	1179	1231	52	a	F
33						1048	1106	58	c	M	1179	1231	52	a	F
34						1048	1106	58	a	F	1426	1475	49	a	M
35						1048	1106	58	a	F	1426	1475	49	c	M
36						1200	1248	48	a	M	1619	1652	33	c	F
37						1200	1248	48	a	F	1619	1652	33	a	F
38						1200	1248	48	a	F	1680	1737	57	a	M
39						1200	1248	48	a	F	1680	1737	57	c	F
40						1200	1222	22	c	M					
41						1200	1222	22	a	M					
42						1473	1480	7	a	F					
43						1590	1635	45	a	F					
44						1590	1635	45	a	F					
45						1590	1635	45	a	M					

Table 2: Raw data of *S. suricatta* observations, obtained at the Riverview Park and Zoo (Nov. 2016)

Visitor Number	Day 1				Day 2				Day 3						
	Arrive Time	Leave Time	Veiling Time	Age (adult/child)	Sex (M/F)	Arrive Time	Leave Time	Veiling Time	Age (adult/child)	Sex (M/F)	Arrive Time	Leave Time	Veiling Time	Age (adult/child)	Sex (M/F)
1	0	17		17 Adult	M	0	55		55 Child	F	2	62		60 A	F
2	0	28		28 Adult	F	0	55		55 Child	M	2	62		60 C	F
3	0	43		43 Adult	F	0	55		55 Adult	F	12	55		43 C	M
4	0	43		43 Child	F	0	88		88 Adult	F	12	89		77 A	F
5	0	43		43 Child	M	0	88		88 Child	M	12	89		77 C	F
6	402	446		44 Child	F	562	602		40 Adult	F	594	701		107 C	M
7	402	446		44 Adult	M	562	602		40 Adult	M	594	701		107 A	F
8	496	546		50 Adult	F	590	709		119 Child	M	594	701		107 C	M
9	496	546		50 Adult	F	590	709		119 Child	M	594	701		107 A	M
10	496	540		44 Adult	F	590	709		119 Adult	F	701	713		12 A	F
11	496	536		40 Adult	M	590	709		119 Adult	M	701	713		12 C	M
12	496	540		44 Adult	M	652	747		95 Adult	F	736	751		15 A	F
13	542	578		36 Adult	M	652	747		95 Adult	M	736	751		15 A	F
14	542	578		36 Adult	M	677	690		13 Adult	M	736	751		15 C	M
15	542	584		42 Adult	F	677	690		13 Adult	F	774	825		51 A	F
16	542	584		42 Adult	F	677	690		13 Child	M	774	825		51 A	M
17	542	584		42 Child	M	677	690		13 Child	F	774	870		96 A	F
18	840	930		90 Child	M	677	690		13 Child	F	889	933		44 A	M
19	867	1008		141 Child	M	690	775		85 Adult	F	889	933		44 C	F
20	867	1008		141 Child	M	690	775		85 Child	M	929	933		4 C	M
21	867	922		55 Child	M	720	754		34 Adult	F	929	933		4 A	M
22	867	935		68 Adult	F	870	918		48 Adult	F	1101	1145		44 C	F
23	880	905		25 Adult	M	870	918		48 Child	M	1101	1145		44 A	F
24	903	946		43 Child	M	927	953		26 Adult	F	1101	1145		44 A	F
25	903	946		43 Adult	F	927	953		26 Adult	M	1101	1145		44 A	M
26	867	922		55 Adult	F	1033	1085		52 Child	F	1311	1322		11 A	M
27	867	935		68 Adult	F	1033	1085		52 Adult	M	1311	1322		11 C	M
28	904	1274		370 Adult	F	1089	1142		53 Adult	F	1311	1322		11 A	F
29	904	1274		370 Child	M	1089	1142		53 Adult	M	1311	1322		11 A	F
30	904	1274		370 Child	F	1089	1140		51 Child	F	1319	1322		3 C	F
31	1008	1118		110 Adult	M	1089	1142		53 Child	F	1319	1322		3 A	M
32	1008	1118		110 Adult	F	1247	1250		3 Adult	F	1322	1363		41 A	F
33	1074	1140		66 Child	F	1247	1250		3 Adult	M	1322	1363		41 A	M
34	1083	1140		57 Adult	M	1247	1250		3 Child	F	1452	1613		161 A	M
35	1087	1140		53 Child	F	1248	1340		92 Adult	F	1452	1613		161 C	M
36	1087	1140		53 Child	M	1248	1340		92 Adult	F	1452	1613		161 A	F
37	1382	1450		68 Adult	M	1248	1340		92 Adult	F	1549	1613		64 A	F
38	1382	1516		134 Adult	F	1248	1340		92 Adult	M	1549	1613		64 A	M
39	1382	1516		134 Adult	F	1290	1340		50 Adult	F	1622	1778		156 A	F
40	1382	1509		127 Adult	F	1290	1340		50 Adult	F	1622	1778		156 C	F
41	1423	1555		132 Adult	F	1290	1340		50 Adult	F	1719	1800		81 C	F
42	1432	1555		123 Child	M	1290	1340		50 Child	M	1719	1800		81 A	M
43	1432	1555		123 Adult	F	1540	1570		30 Adult	M					
44	1432	1516		84 Child	M	1540	1570		30 Adult	M					
45	1627	1676		49 Adult	M	1540	1570		30 Adult	F					
46	1627	1676		49 Adult	F	1540	1570		30 Adult	F					
47	1639	1680		41 Adult	F	1540	1570		30 Adult	F					
48	1639	1680		41 Adult	M	1540	1570		30 Adult	F					
49	1710	1800		90 Adult	M	1540	1570		30 Adult	F					
50	1710	1800		90 Adult	F	1595	1800		205 Adult	F					
51	1710	1800		90 Child	M	1595	1800		205 Adult	F					
52	1710	1800		90 Child	F	1595	1800		205 Child	F					
53						1595	1800		205 Child	F					
54						1595	1800		205 Child	F					
55						1595	1800		205 Child	F					

Table 3: Raw data of *S. sciureus* observations, obtained at the Riverview Park and Zoo (Nov. 2016)

VisitorNumber	Day1				Day2				Day3			
	ArriveTime	LeaveTime	VeiwingTime	Age/adulty/Sex(M/F)	ArriveTime	LeaveTime	VeiwingTime	Age/adulty/Sex(M/F)	ArriveTime	LeaveTime	VeiwingTime	Age/adulty/Sex(M/F)
1	24	110	86	Child M	0	22	22	Adult M	3	45	42	A M
2	46	113	67	Adult M	0	22	22	Adult F	3	45	42	A F
3	53	113	60	Adult M	0	22	22	Child M	27	33	42	C M
4	240	384	144	Child M	0	22	22	Child F	169	186	42	C F
5	280	384	104	Child F	27	32	5	Adult M	176	212	17	A M
6	280	384	104	Child M	173	187	14	Adult F	176	212	36	A F
7	282	384	102	Adult F	117	123	6	Adult F	189	216	36	C F
8	431	502	71	Adult F	163	197	34	Adult M	189	216	36	C M
9	431	502	71	Adult M	163	197	34	Child F	228	241	36	A M
10	498	500	2	Adult F	163	197	34	Child F	228	241	27	C M
11	498	500	2	Adult F	172	206	34	Child F	271	279	27	A F
12	498	500	2	Adult M	172	206	34	Adult M	271	279	13	A F
13	498	500	2	Adult F	216	241	25	Adult M	271	279	13	A M
14	498	500	2	Adult F	216	241	25	Child M	296	359	8	C F
15	476	516	40	Adult M	232	276	44	Adult F	296	359	8	A F
16	476	516	40	Adult F	232	276	44	Adult M	313	357	8	C M
17	520	549	29	Adult M	232	276	44	Child F	313	357	63	A M
18	520	549	29	Adult F	274	296	22	Adult F	313	357	63	A M
19	522	640	118	Adult F	274	296	22	Adult M	342	384	44	C F
20	522	652	130	Adult M	303	357	54	Adult F	342	384	44	A M
21	522	652	130	Child M	303	357	54	Adult M	342	384	44	A M
22	522	640	118	Child F	303	357	54	Child M	342	384	42	C F
23	522	652	130	Adult M	340	371	31	Adult F	391	466	42	A M
24	790	878	88	Child M	340	371	31	Adult M	391	466	42	C F
25	790	878	88	Adult F	340	371	31	Child F	605	652	42	C M
26	808	948	140	Child M	340	371	31	Child F	605	652	75	A F
27	808	900	92	Child F	381	469	88	Adult F	605	652	75	A M
28	828	948	120	Adult M	381	469	88	Adult M	654	674	47	A F
29	828	945	117	Child M	547	656	109	Adult F	763	883	47	C F
30	828	948	120	Child F	547	656	109	Adult M	763	883	47	A M
31	830	854	24	Adult F	547	656	109	Adult F	763	883	20	A F
32	868	955	87	Adult M	547	656	109	Child F	896	979	120	C M
33	925	936	11	Adult F	736	883	147	Adult M	896	979	120	C M
34	1130	1196	66	Child F	736	883	147	Adult F	896	979	120	A F
35	1130	1196	66	Adult F	893	954	61	Adult M	913	979	83	A M
36	1242	1410	168	Adult F	893	954	61	Child F	913	1076	83	A F
37	1242	1410	168	Adult F	891	921	30	Child M	1003	1127	83	A F
38	1242	1410	168	Adult F	891	921	30	Child F	1003	1127	66	A M
39	1217	1410	193	Child M	891	921	30	Adult M	1003	1127	163	C F
40	1217	1240	23	Child F	1000	1038	38	Adult F	1003	1127	124	A F
41	1217	1240	23	Child F	1000	1038	38	Child F	1003	1136	124	A F
42	1233	1238	5	Adult F	1000	1038	38	Child F	1003	1136	124	C M
43	1277	1280	3	Adult M	1000	1038	38	Child M	1065	1091	124	A F
44	1277	1280	3	Adult M	1000	1038	38	Adult M	1065	1091	133	A F
45	1277	1280	3	Adult F	1030	1111	81	Child F	1105	1164	133	A M
46	1277	1280	3	Adult F	1030	1111	81	Child F	1105	1164	26	A F
47	1340	1360	20	Adult M	1030	1111	81	Adult M	1105	1164	26	C F
48	1340	1360	20	Child F	1030	1111	81	Adult F	1171	1183	59	A F
49	1373	1375	2	Child F	1101	1144	43	Adult M	1171	1213	59	A M
50	1373	1386	13	Child M	1101	1144	43	Adult F	1171	1214	59	C F
51	1373	1386	13	Adult F	1162	1183	21	Adult M	1171	1316	12	A F
52	1373	1386	13	Adult M	1162	1183	21	Adult F	1289	1316	42	A F
53	1454	1519	65	Adult F	1170	1214	43	Adult M	1289	1316	43	A M
54	1454	1519	65	Child M	1170	1214	44	Child M	1289	1411	145	A F
55	1480	1519	39	Adult F	1282	1316	34	Adult M	1313	1411	27	C M
56	1480	1519	39	Child F	1282	1316	34	Child M	1313	1411	27	C M
57	1480	1519	39	Adult F	1282	1316	34	Child F	1313	1411	122	A M
58	1504	1536	32	Adult F	1320	1411	91	Child F	1343	1569	98	C F
59	1504	1536	32	Adult F	1320	1411	91	Child F	1343	1569	98	A F
60	1565	1593	28	Adult F	1320	1411	91	Child M	1343	1569	98	C M
61	1565	1576	11	Adult M	1320	1411	91	Adult M	1426	1543	226	A M
62	1565	1582	17	Child F	1400	1455	55	Adult F	1426	1543	226	C F
63	1689	1727	38	Adult F	1426	1492	66	Adult F	1426	1543	226	C F
64	1689	1724	35	Adult M	1426	1492	66	Adult M	1498	1637	117	A F
65	1689	1727	38	Child F	1426	1492	66	Child M	1498	1637	117	A M
66	1743	1800	57	Adult F	1426	1492	66	Child M	1498	1637	117	A F
67	1743	1800	57	Child F	1426	1492	66	Adult F	1498	1637	139	A M
68	1743	1800	57	Child M	1493	1542	49	Adult M	1498	1637	139	C F
69	1788	1796	8	Adult M	1493	1542	49	Child M	1514	1598	139	A M
70	1788	1796	8	Adult F	1493	1542	49	Child M	1514	1598	139	A M
71	1788	1796	8	Adult F	1493	1542	49	Child M	1514	1598	139	A F
72					1493	1542	49	Adult M	1514	1598	84	C F
73					1530	1617	87	Child F	1606	1674	84	A M
74					1530	1617	87	Child M	1606	1674	84	A F
75					1530	1617	87	Adult M	1634	1755	84	C M
76					1606	1660	54	Adult F	1634	1755	68	A F
77					1654	1677	23	Adult F	1634	1755	121	A M
78					1654	1677	23	Child M	1727	1800	73	A M
79					1715	1744	29	Adult M	1727	1800	73	A F
80					1715	1744	29	Adult F	1764	1800	36	A F
81					1733	1794	61	Adult F	1764	1800	36	A F
82					1733	1794	61	Child M	1764	1800	36	C M
83					1733	1794	61	Child M	1783	1800	17	A F

Table 4: Raw data of *B. grunniens* observations, obtained at the Riverview Park and Zoo (Nov. 2016)

VisitorNumber	Day1					Day2					Day3				
	ArriveTime	LeaveTime	VeiwingTime	Age/adult	Sex(M/F)	ArriveTime	LeaveTime	VeiwingTime	Age/adult	Sex(M/F)	ArriveTime	LeaveTime	VeiwingTime	Age/adult	Sex(M/F)
1	91	460	369	A	M	19	227	208	A	M	19	227	208	A	M
2	91	460	369	A	F	19	227	208	A	F	19	227	208	A	F
3	165	215	50	A	M	441	496	55	A	M	91	460	369	A	M
4	165	215	50	A	M	441	496	55	A	F	91	460	369	A	F
5	165	215	50	C	M	441	496	55	C	M	165	215	50	A	M
6	486	614	128	A	F	612	643	31	A	M	165	215	50	A	M
7	486	614	128	A	F	612	643	31	A	F	165	215	50	C	M
8	486	614	128	C	F	822	926	104	A	M	441	496	55	A	M
9	486	614	128	C	F	822	926	104	A	F	441	496	55	A	F
10	577	764	187	C	F	822	926	104	C	M	441	496	55	C	M
11	577	764	187	C	M	822	926	104	C	F	612	643	31	A	M
12	577	764	187	A	F	896	1129	233	A	M	612	643	31	A	F
13	613	629	16	A	F	896	1129	233	C	M	759	1302	543	A	F
14	613	629	16	A	F	983	1024	41	A	M	759	1302	543	C	F
15	613	629	16	A	M	983	1024	41	A	F	759	1302	543	C	F
16	759	1302	543	A	F	983	1024	41	C	M	896	1129	233	A	M
17	759	1302	543	C	F	983	1024	41	C	F	896	1129	233	C	M
18	759	1302	543	C	F	1089	1174	85	A	M	983	1024	41	A	M
19	798	848	50	A	F	1089	1174	85	A	F	983	1024	41	A	F
20	798	848	50	A	F	1089	1174	85	C	M	983	1024	41	C	M
21	896	916	20	A	F	1121	1314	193	C	M	983	1024	41	C	F
22	896	916	20	C	F	1121	1314	193	A	M	1157	1273	116	C	M
23	896	916	20	C	F	1121	1314	193	A	F	1157	1273	116	A	F
24	896	916	20	A	M	1121	1314	193	A	M	1423	1499	76	A	F
25	896	916	20	C	M	1157	1273	116	C	M	1423	1499	76	C	M
26	1423	1499	76	A	F	1157	1273	116	C	M	1423	1499	76	C	M
27	1423	1499	76	C	M	1157	1273	116	A	F	1494	1589	95	A	F
28	1423	1499	76	C	M	1284	1347	63	A	M	1494	1589	95	C	F
29	1536	1607	71	A	F	1284	1347	63	C	M	1494	1589	95	C	F
30	1536	1607	71	A	M	1284	1347	63	A	M					
31	1649	1800	151	A	F	1499	1609	110	A	F					
32						1499	1609	110	C	F					
33						1499	1609	110	C	F					

