

SUMMARY REPORT

3 February 2014

Deer Distance Sampling Population Estimate

Town and Country, Missouri

by

White Buffalo, Inc.

Introduction/Methods

We used a population estimation method called Distance Sampling. This approach is based on the premise that you can determine the width of a transect traveled by creating a detection probability from the field observations (i.e., number of deer and distance from the transect). In simple terms, the software program projects the area sampled and then integrates the number of deer observed in that area to determine density.

The transect was the same as last year, ~21 miles long, and was surveyed once each evening. We used Erin Shank, Mike Caby, and Kyle Lorenz from MDC as part of the survey team on the three survey nights. Spotlighting surveys were conducted from ~2200-0400 h on 19, 21 and 23 January 2014.

While driving 10 mph spotters searched their respective side of the road with 400,000 candlepower spotlights. Upon sighting deer, the number in each social group, age and sex of the individuals, whether deer were marked or unmarked, and the perpendicular distance to the group

was recorded. These data were then entered into a software program (Distance-Version 5.0) that estimates the deer density. The full data set is included as Appendix A

Results/Discussion

The survey team counted from 94–126 deer (36-45 groups of deer) on the 3 transect replicates under very similar weather conditions, Appendix A. Deer were observed from 1 to 198 yards from the road, with most observations occurring at less than 100 yards. The estimated density for the area surveyed ($\sim 10 \text{ mi}^2$), using three transect data sets, was 43.286 deer/mile² (Confidence interval: 30.48 – 61.47). The number of deer/cluster increased over the December 2012 sampling efforts (2.84 vs. 2.58), a 10% increase. The mean sighting distance was 67.98 yards, an increase of 14 % over the December 2012 (59.4 yards) survey.

Culling operations continued during the surveys, resulting in the reduction of 24 deer between the first and second (19 & 21 January) survey and 8 deer between the second and third survey (21 & 23 January). During the three survey nights, several large groups of deer were detected adjacent to Queeny Park, specifically along Mason Road and the Kings Glen/Royal Glen areas. The detection of these groups increased the total number of deer detected by 25% (n=25), 21% (n=22), and 34% (n=24) respectively on the 19, 21, and 23 January survey nights. This section of the sampling route, accounting for 2.1 miles ($\sim 10\%$), skewed the density estimate by 6 deer/mile² ($\sim 16\%$). If this 2.1 mile section of the route is excluded from the data set the estimate is 37.17 deer/mile² (Confidence interval: 24.96 – 55.35).

Deer appeared to be fairly evenly distributed in the area sampled with the exception of the Mason Valley, Mason Road, Thornhill and Kings Glen/Williamsburg Estates area in which densities are higher than the rest of town. The Mason Valley and Thornhill neighborhoods have numerous surgically sterilized deer. Although detection is difficult, due to the small ear tag size,

several were witnessed during the population estimate in both neighborhoods, further skewing the densities in these two areas. The higher densities along Mason Road and in Kings Glen/Williamsburg Estates can be directly attributed to the lack of cooperating landowners and removal efforts in this area.

The demographics of the population were ~32% yearling and adult females, ~36% fawns, 9% yearling and adult males, and 23% undetermined based on observations during the survey.

Appendix A – Distance sampling data 19, 21, 23 January 2014

Project: Town and Country, MO Date: 1/19/14

Time conducted: 22:30-03:30 Transect Length: 20.5 Miles

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
3	3 Unk	74	12765 Spruce Pond
5	2 AF / 3 Fawns	98	Principia/Tammany
2	1AF / 1 Fawn	47	1247 Tammany
2	1 AF / 1 Unk	166	Tundra/Topping
7	Unk	157	12924 Topping Est. S
4	2 AF / 2 Fawn	40	12904 Topping Est. S
5	1 AF / 1 AM / 2 YM / 1 Unk	66	12801 Post Oak
2	2 AF	1	12835 Topping Manor
3	2 AF / 1 Fawn	50	12939 Thornhill
7	3 AF / 4 Fawns	82	1818 Manor Hill
2	1 AF / 1 Fawn	104	13337 WoodMark
3	1 AF / 1 Fawn	135	Thornhill/Manor Hill
6	3 AF / 3 Fawns (2 tagged)	55	13407 Thornhill
2	2 AM	88	Van Courtland Place
1	1 Unk	105	13421 Featherstone
4	1 AF / 2 Fawns / 1 Unk	62	1731 Mason Knoll
1	1 AM	40	1486 Mason
7	3 AF / 4 Fawns	38	1460 Mason
10	4 AF / 6 Fawns	19	1228 Mason
2	1 AM / 1 Fawn	25	Mason/Kings Glenn
3	1 AF / 2 Fawns	80	Kings Gleen
3	1 AF / 2 Fawns	40	13612 Clayton
2	2 Fawns	76	Clayton/Tidewater Pl
6	6 Unk	139	43 Summer Hill
2	1 AF / 1 Fawn	34	Brookmill/Ruhl
1	1 YM	102	16 Brookmill
1	1 AM	94	11 Brookmill
1	1 AF	47	50 Brookmill
5	2 AF / 3 Fawns (1 tagged)	77	Conway/141
1	1 AM	49	Conway/Babbler
1	1 AF (tagged)	10	Conway/Babbler
1	1 AF	80	Conway/Conway Village
3	1 AF / 1 Fawn / 1 Unk	65	420 Conway Village
2	1 AF / 1 Fawn	65	568 Wood Creek Ct
2	2 Fawns	80	324 Babbler
1	1 Unk	198	Pebble Ridge/Pebble Acres
5	5 Unk	136	Outer 40/Principia
1	1 Fawn	17	Town and Country Est./ Outer 40

Project: Town and Country, MO Date: 1/21/14

Time conducted: 22:30-03:00 Transect Length: 20.7

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
3	1AF / 2 Fawns	32	Dry Ridge / Clayton
2	2 UNK	138	Topping / Taunton Ct
2	2 UNK	138	Topping / Taunton Ct
2	2UNK	80	12941 Topping
2	1AF / 1 Fawn	85	Post Oak Pond
1	1 Fawn	44	1609 Topping
5	4 AF / 1 Fawn	28	1739 Topping
4	3 AF / 1 Fawn	0	13029 Thornhill
2	1 Fawn / 1 UNK	43	13029 Thornhill
3	2 AF / 1 Fawn	68	1827 Manor Hill
4	2 AF / 2 UNK	0	Thornhil / Manor Hill
2	1 AF / 1 Fawn	35	Thornhill / Manor Hill
2	2 UNK	79	1816 Woodmark
1	1 AF	19	1842 Mason
6	3 AF / 2 Fawn / 1 UNK	74	Queeny Dog Museum
1	1 AF	129	Mason / Van Courtland
6	6 UNK	113	Van Courtland Place
4	2 AF / 2 Fawns	29	1694 Mason
4	2 AF / 1 Fawn / 1 UNK	104	Foxleigh Ct
3	3 UNK	133	Foxleigh Ct
6	4 AF / 2 Fawns	70	Featherstone
3	2 AF / 1 Fawn	42	13368 Featherstone
2	2 UNK	97	1735 Mason Knoll
2	2 AF	42	Mason / Kings Glen
3	1 AF / 2 Fawns	17	13550 Kings Glen
4	2 AF / 2 Fawns	51	Kings Glen
5	3 AF / 2 Fawns	5	Kings Glen
1	1 YM	42	Weston Park / Mason
3	1 AF / 2 Fawns	35	25 Williamsburg Est
1	1 YM	158	13530 Clayton
2	2 AM	50	13530 Clayton
2	1 AF / 1 Fawn	107	33 Summerhill
2	2 Fawns	33	7 Summerhill
1	1 Fawn	27	27 Summerhill
2	2 UNK	107	27 Summerhill
1	1 UNK	82	Conway Village Ct
1	1 UNK	97	300 Babler
4	2 AF / 2 Fawns	41	Ladue / Pebble Acres

Project: Town and Country, MODate: 1/23/14Time conducted: 22:30-03:30Transect Length: 20.5 Miles

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
3	1 AF / 2 Fawns	63	1220 Topping
3	3 UNK	88	1274 Post Oak
1	1 AM	19	12933 Topping Est.
1	1 AF	45	12933 Topping Est.
3	1 AF / 2 Fawns	71	12933 Topping Est.
3	1 AF / 2 Fawns	52	12934 Topping Est.
5	2 AF / 3 Fawns (1 tagged)	29	1739 Topping
1	1 YM	29	1324 Topping
1	1 Fawn	53	12939 Thornhill
3	1 AF / 2 Fawns	20	1816 Woodmark
3	2 AF / 1 Fawn	36	1816 Woodmark
2	2 AF (both tagged)	45	13407 Thornhill
3	1 AF / 2 Fawns	75	Van Courtland / Queeny
3	1 AF / 1 AM / 1 Fawn	80	Van Courtland / Queeny
5	5 UNK	115	Van Courtland / Queeny
1	1 AF	100	Foxleigh Ct / Featherstone
3	1 AF / 1 UNK	41	Mason Knoll Ct.
1	1 Fawn	1	Mason / Kings Glen
3	1 AF / 2 Fawn	19	Kings Glen / Royal Glen
1	1 UNK	100	Kings Glen / Royal Glen
6	3 Fawns / 1 AM / 2 UNK	62	Kings Glen / Royal Glen
3	1 AF / 2 Fawns	64	Kings Glen / Royal Glen
3	1 AF / 1 Fawn / 1 UNK	120	26 Williamsburg Est
7	5 AM / 1 Fawn / 1 UNK	49	Clayton / Williamsburg
1	1 Fawn	48	13769 Clayton
3	1 AF / 2 Fawns	51	Clayton / Glazeview
3	3 Fawns	1	35 Summerhill
2	2 UNK	138	35 Summerhill
2	1 Fawn / 1 UNK	64	26 Summerhill
1	1 AM	76	409 Conway Village
4	1 AF / 3 UNK	87	483 Conway Village
1	1 YM	29	324 Babler
1	1 Fawn	19	Babler / Ladue
2	1 AF / 1 Fawn	76	Ladue / Pebble Acres
2	2 UNK	164	230 Pebble Acres
4	1 AF / 1 Fawn / 2 UNK	87	12575 Bickford