

## **SUMMARY REPORT**

**January 2011**

**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 previous efforts, ~21 miles long, and was surveyed once each evening. We used Joel Porath and Erin Shank from MDC as part of the survey team. Spotlighting surveys were conducted from ~2200-0400 h on 20, 21 and 23 January 2011.

While driving 10 mph spotters searched their respective side of the road with 200,000 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.

## Results/Discussion

The survey team counted from 75–113 deer (33-39 groups of deer) on the 3 transect replicates under very similar weather conditions, Appendix A. Deer were observed from 1 to 156 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 35.8 deer/mile<sup>2</sup> (Confidence interval: 28.5 – 45.0). The number of deer/cluster dropped dramatically between the early (December) and late (January) sampling efforts (2.56 vs. 1.7), a 44% decrease. The mean sighting distance was 66.88 yards, an increase of 17% over the December survey. An additional 27 deer were culled after the survey resulting in a further reduction in the population of  $\sim 2.7$  deer/mi<sup>2</sup>.

Culling operations continued during the surveys, resulting in the reduction of 10 deer between the first and second (20 & 21 January) survey and 22 deer between the second and third survey (21 & 23 January). The two survey sets resulted in an estimated 27.6 deer/mi<sup>2</sup> (63.4 deer/mi<sup>2</sup> – 35.8 deer/mi<sup>2</sup>) reduction in the population. This corresponds very closely to the actual removal numbers; 221 deer were culled between the December and January surveys in the  $\sim 10 \text{ mi}^2$  area (22.1 deer/mi<sup>2</sup>). Some error in the estimated removal may have occurred due to the difficulty in accounting for deer culled during the three transect data sets in January (32 deer) survey and the two transect data sets in December (19 deer).

Deer appeared to be fairly evenly distributed in the area sampled with the exception of the Thornhill area in which densities are much higher than the rest of town. This can be directly attributed to the lack of cooperating landowners and removal efforts in this area.

The demographics of the population were  $\sim 35\%$  yearling and adult females,  $\sim 36\%$  fawns, 10% yearling and adult males, and 19% undetermined based on observations during the survey.

Appendix A

Project: Town and Country, MO Date: 1/20/12

Time conducted: 11:00 P.M. Transect Length: 21.2 Miles

# of deer/group	A-Female/Fawn/YM/A-Male Unknown	Perpendicular distance (yd)	Location
3	1 A-F/2 Fawn	17	12725 Clayton
3	3 A-F (2 marked)	93	Clayton/Claymark
3	1 A-F/ 2 Fawn	73	1201 Tammany
4	2A-F (1 marked)/2 Fawn	101	1201 Tammany
1	1 Fawn	54	Topping Estates/ Topping
2	2 Fawn	39	1533 Topping
2	2 A-F (1 Marked)	49	Topping/Topping Acres
4	1 A-F/2 Fawn/1 Unk	37	Topping/Thornhill
1	1 A-M	83	Topping/Nettle Creek
2	1 A-F/1 Fawn	49	1864 Woodmark
2	2 Unk	58	1864 Woodmark
1	Unk	83	1628 Featherstone
3	Unk	136	13368 Featherstone
4	2 A-F/2 Fawn	156	1669 Mason Knoll
2	1 A-F/1 Fawn	53	1562 Mason
5	1 A-F/3 F57awns/1A-M	24	1562 Mason
1	1 A-M	86	1562 Mason
1	1 A-F	10	1562 Mason
4	2 A-F/2 Fawns	57	1293 Mason
4	1 A-F/3 Fawns	81	9 Williamsburg Est.
2	1 A-F (1 Marked)/1Fawn	98	6 Williamsburg Est.
2	1 A-F/1 Fawn	30	6 Williamsburg Est.
3	3 A-M	53	Clayton at Longvi1ew Park
4	1 A-F (1 Marked)/3 Unk	111	13650 Clayton
2	1 A-F/1 Fawn	83	33 Summerhill
3	3 Unk	142	14 Summerhill
5	5 A-M	91	13 Brookmill
4	2 A-F/1 Fawn/1 Unk	10	53 Brookmill
2	1 A-F (1 Marked)/1 Fawn	118	13241 Pebble Acres
1	1 Unk	56	Mason/Conway Grove
3	2 A-F/1 Fawn	5	Mason/Conway Grove
3	1 A-F (1 Marked)/2 Unk	113	Amersham/Muni Center Dr.
3	1 A-F/2 Fawns	17	Delvin/Bickford
4	3 A-F (3 Marked)/1 Unk	60	978 Delvin

Project: Town and Country, MODate: 1/21/12Time conducted: 11:00 P.M.Transect Length: 21.4 Miles

# of deer/group	A-Female/Fawn/YM/A-Male Unknown	Perpendicular distance (yd)	Location
3	2 A-F (1 Marked)/1 Unk	65	875 Amersham
5	5 Unk	77	1574 Bicford
2	2 A-M	156	978 Delvin
2	1 A-F/1 Fawn	60	Mason/St Louis Abby
3	3	130	Mason/St Louis Abby
3	3 Unk	80	Mason/St Louis Abby
1	1 A-M	136	230 Pebble Acres
7	3 A-F/4 Fawns	55	141/Conway
1	1 A-M	73	21 Brookmill
2	1 A-F/1 Fawn	93	29 Summerhill
2	1 A-F/1 Fawn	76	13702 Clayton
4	1 A-F (1 Marked)/3 Unk	96	13702 Clayton
4	1 A-F/ 3 Fawns	60	1232 Kings Glenn
1	1 A-F	37	1293 Mason
5	3 A-F/ 2 Fawns	42	Feathersone/Queeny
2	2 Unk	93	Feathersone/Queeny
5	3 A-F (2 Marked)/2 Fawns	73	13535 Featherstone
5	3 A-F (2 Marked)/2 Fawns	37	13368 Featherstone
3	3 Unk	93	Featherstone/Mason Knoll
3	3 A-F (3 marked)	129	Featherstone/Mason Knoll
1	1 A-F	48	Featherstone/Mason Knoll
2	2 Unk	126	Featherstone/Mason Knoll
2	1 A-F (1 Marked)/1 Fawn	65	Featherstone/Mason Knoll
3	3 Unk	128	1715 Mason Knoll
2	2 Unk	91	1715 Mason Knoll
3	2 A-F (2 Marked)/1 A-M	39	Queeny Dog Museum
3	2 A-F (1 Marked)/1 Fawn	21	Queeny Dog Museum
1	1 A-F (1 Marked)	19	13423 Thornhill
5	2 A-F/3 Fawns	40	13231 Thornhill
8	3 A-F (2 Marked)/2 Fawns/3 Unk	24	13231 Thornhill
2	1 A-F/1 Fawn	28	13201 Thornhill
3	2 A-F (1 Marked)/1 Fawn	27	1738 Topping
2	1 A-F/1 Fawn	35	Topping Acres/Topping
2	1 A-F/1 A-M	152	Post Oak (Lake)
3	1 A-F/2 Fawns	88	Post Oak (Lake)
2	2 Fawns	18	12909 Topping Estates
2	2 Fawns	11	1408 Topping
1	1 A-F	73	1209 Tammany
3	1 A-F/2 Fawns	39	1237 Tammany

Project: Town and Country, MO Date: 1/23/12

Time conducted: 10:30 P.M. Transect Length: 20.6 Miles

# of deer/group	A-Female/Fawn/YM/A-Male Unknown	Perpendicular distance (yd)	Location
1	1 AM	48	13000 Clayton
1	Unk	148	Principia/Clayton
2	1 A-F/1 Fawn	73	Tammany/Clayton
3	1 A-F/2 Fawn	73	Tammany/Hawkshead
1	1 A-F	30	1533 Topping
4	1 A-F (1 Marked)/ 2 Fawns/1 A-M	44	Topping Acres//Topping
2	2 A-M	30	12960 Thornhill
4	4 Fawns	42	14017 Thornhill
7	3 A-F (1 Marked)/4 Fawns	69	Thornhill/Nettlecreek
1	1 A-M	55	Mason/Van Courtland
3	1 A-F/2 Fawns	60	Queeny Dog Museum
6	1 A-F/2 Fawns/3 Unk	56	13550 Featherstone
4	2 A-F (1 Marked)/2 Fawns	54	1647 Featherstone
2	1 A-F (1 Marked)/1 A-M	69	Mason/Blossom Hill
1	1 A-F	16	Mason/Blossom Hill
3	1 A-F/2 Fawns	41	28 Williamsburg
1	1 A-M	60	26 Williamsburg
1	1 A-M	24	3 Williamsburg
3	1 A-F/1 Fawn/1 Unk	81	Clayton/Longview
3	2 A-F (1 Marked)/1 Fawn	131	13650 Clayton
1	1 A-M	5	13710 Clayton
2	1 A-F/1 Fawn	49	Clayton/Summerhill
3	3 Fawns	19	34 Summerhill
2	1 A-F/1 Fawn	20	31 Summerhill
1	1 A-F	115	North Mill/Old Woods Mill
2	2 Fawns	122	Conway/Conway Hill
1	1 Unk	167	Conway/Conway Hill
2	1 A-F/1 Fawn	5	237 Pebble Acres
1	1 Fawn	126	Conway/Mason
2	1 A-F/1 Fawn	62	Conway/Mason
1	1 A-M	42	Mason/Mason View Ct.
2	1 A-F/1 Fawn	51	Mason/Mason View Ct.
2	2 Unk	64	Mason/Mason View Ct.