

SUMMARY REPORT

December 2012

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 Joel Porath and Erin Shank from MDC as part of the survey team on two of the three survey nights. Spotlighting surveys were conducted from ~2200-0400 h on 21, 27 and 28 December 2012.

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. The full data set is included as Appendix A.

Results/Discussion

The survey team counted from 79–87 deer (32-33 groups of deer) on the 3 transect replicates under very similar weather conditions, Appendix A. Deer were observed from 1 to

147 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 38.46 deer/mile² (Confidence interval: 28.31 – 52.24). The number of deer/cluster increased over the early January sampling efforts (2.58 vs. 1.7), a 52% increase. The mean sighting distance was 59.4 yards, a decrease of 12% over the January (66.88 yards) survey.

Culling operations continued during the surveys, resulting in the reduction of 13 deer between the first and second (21 & 27 December) survey and 6 deer between the second and third survey (27 & 28 December). An additional 9 deer were culled on 29 December after the sampling was completed. During the second survey night, 27 December 2012, sighting distances were much closer (mean = 52.6 yards) than the other two surveys, 21 December (mean = 60.4 yards) & 28 December 2012 (mean = 65.1), although the number of groups (32, 31, and 32 respectively), and the number of deer (79, 79, & 87 respectively) were similar. This resulted in a substantially higher estimate than if only the first and third night were taken into account (D=33.32 deer/mile² with confidence interval of 24.40-45.51).

Deer appeared to be fairly evenly distributed in the area sampled with the exception of the Mason Valley, Thornhill, and Kings Glen/Williamsburg Estates area in which densities appeared to be higher than in the rest of town. The Mason Valley and Thornhill neighborhoods have numerous surgically sterilized deer. Although detection is difficult, due to the small ear tags size, several were witnessed during the population estimate in both neighborhoods skewing the densities in these two areas. The higher densities in Kings Glen/Williamsburg Estates can be directly attributed to the lack of cooperating landowners and limited removal efforts in this area.

The demographics of the population were $\sim 38\%$ yearling and adult females, $\sim 43\%$ fawns, 7% yearling and adult males, and 12% undetermined based on observations during the survey. Twenty two surgically sterilized deer were positively identified during the 3 survey nights.

Appendix A – Distance sampling data 21, 27, 28 December 2012

Project: Town & Country, MO

Date: 12/21/12

Time conducted: 22:30

Transect Length: 21.7

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
3	3-F	48	Spruce Pond/White Stable
2	1-AF / 1-F	85	1222 Tammany
1	1-AF	125	1272 Tammany
3	2-AF / 1-F	26	1266 Topping
1	1-AM	24	1266 Topping
1	1-UNK	101	End of Post Oak
1	1-AF	33	12842 Topping Manor
3	2-AF / 1-F	28	12842 Topping Manor
4	3-AF / 1-F	105	13051 Thornhill
4	1-AF/ 2-F / 1-AM	92	1804 Manor Hill
2	1-AF / 1-F	62	Thornhill/Manor Hill
5	2-AF / 3-F	38	13447 Thornhill
2	1-AF / 1-F	110	Mason/Thornhill
2	1-AF / 1-F	88	Featherstone/Peacock Farm
1	1-F	69	Featherstone/Peacock Farm
2	1-AF / 1-F	52	Featherstone/Mason Valley
2	2-UNK	131	Featherstone/Mason Valley
2	2-AF	76	Featherstone/Mason Valley
2	2-AF (2 Tagged)	18	1544 Mason
4	1-AF / 1-F / 2-UNK	100	1414 Mason
3	2-AF / 1-F	18	Mason/Kings Glen
1	1-AM	81	13536 Royal Glen
1	1-AF (Tagged)	70	13536 Royal Glen
7	2-AF / 5-F	3	10 Williamsburg est.
2	2-UNK	62	7 Williamsburg est.
2	1-AF / 1-F	72	13702 Clayton
5	1-AF / 1-F / 3-AM	110	13706 Clayton
1	1-AM	70	25 Summerhill
1	1-AM	0	3 Brookmill
5	2-AF / 2-F / 1-AM	10	Brookmill/Clayton
2	1-AF / 1-F	11	230 Summerhill
2	1-AF / 1-F	12	997 Delvin

Project: Town & Country, MO

Date: 12/27/12

Time conducted: 22:30

Transect Length: 21.7

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
3	1-AF / 2-F	49	12350 S. outer 40
1	1-AF	62	Amersham/Delvin
1	1-AF	21	Conway/Babbler
1	1-AM	52	Brookmill
4	2-AF / 2-F	88	46 Brookmill
3	1-AF / 2-F	42	20 Summer Hill
1	1-AM	24	10 Williamsburg
1	1 UNK	116	Kings Glen
3	1-AF / 2-F	52	Kings Glen
4	2-AF / 2-F (1 Tagged)	30	1293 Mason
1	1-AM	18	Mason/Buckland
2	1-AF / 1-F	5	1325 Mason
1	1-AF	46	Featherstone/Mason
2	2-UNK	81	1628 Featherstone
3	1-AF / 2-F	76	13477 Featherstone
3	3-AF (2 Tagged)	5	Featherstone/Mason Valley
4	1-AF / 3-F	80	13365 Featherstone
2	2-UNK	83	13365 Featherstone
2	2-UNK	137	Featherstone/Tennis Courts
3	1-AF / 2-F	15	Mason Knoll Ct.
3	2-AF / 1-F	22	Mason/Dog Museum
3	1-AF / 2-F	38	1864 Woodmark
1	1-AM	61	Woodmark/Manor Hill
4	2-AF / 2-F	85	1827 Manor Hill
4	1-AF / 3-F	50	Thornhill/Nettlecreek
4	2-AF / 2-F (1 Tagged)	85	Thornhill/Muir Woods
1	1-UNK	87	Thornhill/Muir Woods
3	1-AF / 2-F	19	1730 Topping
6	3-AF / 3-F	25	12747 Post Oak
2	1-AF / 1-F	60	Topping/Timmor Ct.
3	1-AF / 2-F	18	Municipal Center/Clayton

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Date: 12/28/12

Time conducted: 22:30

Transect Length: 21.7

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
2	1-AF / 1-F	90	1201 Tammany
3	3-UNK	103	1201 Tammany
3	1-AF / 2-F	85	1317 Topping
3	1-AF / 2-F	72	12920 Topping Est.
4	2-AF / 2-F	33	12739 Post Oak
3	1-AF / 2-F	59	Thornhill/Karlin
2	1-AF / 1 F (1 Tagged)	44	13134 Thornhill
8	4 AF / 4 F (2 Tagged)	81	Muir Woods/Thornhill
4	1-AF / 3-F	74	1819 Manor Hill
4	4-UNK	81	1819 Manor Hill
1	1-F	44	1816 Woodmark
2	1-AF / 1-F (1 Tagged (103))	19	1825 Mason
1	1-UNK	42	Mason/Dog Museum
1	1-F	54	Mason/Dog Museum
3	3-F	44	13694 Peacock Farm
3	1-AF / 2-F	53	13668 Peacock Farm
6	4-AF / 2-F (4 Tagged)	35	Peacock Farm/Foxleigh Ct.
1	1-AF	31	Peacock Farm/Foxleigh Ct
1	1-AF (1 Tagged)	86	13368 Peacock Farm
2	2-UNK	89	13331 Peacock Farm
3	1-AF / 2-F	24	1620 Mason Knoll
1	1-F	37	1486 Mason Rd.
1	1-AM	118	1215 Kings Glen
1	1-AM	63	9 Williamsburg Est.
3	3-UNK	95	Clayton/Templeton Place
3	1-AF / 2-F	96	15 Brookmill
4	1-AF / 3-F	11	54 Brookmill
6	2-AF / 4-F	115	13321 Treetop View
2	2-UNK	147	Amersham/S. Outer 40
1	1-AF	93	Amersham Dr/Amersham Ct
2	1-AF / 1-F	32	997 Delvin
3	3-AF (3 Tagged)	32	Amersham/S. Outer 40