

## **SUMMARY REPORT**

### **Deer Distance Sampling Population Estimate**

**Des Peres, Missouri**

**by**

**White Buffalo, Inc.**

**21 January 2016**

#### **Introduction/Methods**

The city of Des Peres is 4.3 mile<sup>2</sup> and bisected by I270 running north/south. There are approximately 2.2 mile<sup>2</sup> in the western section of the city with the remaining area located east of I270. We often delineate areas within a community to better describe deer density variability if it exists.

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 the number of deer observed in that area to determine density.

First, we delineated a non-overlapping spotlighting route on a City road map (Figure 1). We used Dan Jenkerson, Des Peres Public Safety Officer, as part of the survey team. Spotlighting surveys were conducted from ~22:00-03:30 h on 17, 18, and 20 January 2016. The transect was ~16 miles long, comprised of 7.0 miles east of I270, 9.0 miles west of I270, and surveyed once each evening on 17 and 18 January 2016. On 20 January 2016 the western section of the route was sampled twice and no survey was conducted on the eastern portion of the route.

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, and the perpendicular distance to the group was recorded. These data were then entered into a software program (Distance-Version 6.0) that estimates the deer density.

#### **Results/Discussion**

The survey team counted from 20–31 deer (10-12 groups of deer) on the 4 transect replicates (See Figure 1 for the full survey route). Temperature, wind, and cloud cover were similar on all three sampling nights. Deer were observed from 1 (on the road) to 120 yards from the road, with most observations occurring less than 70 yards. The data was truncated to exclude the top 5% of sighting distances. This eliminated two observations from the sampling route that were 118 and 120 yards from the transect line. Both observations took place in the same location, on two separate sampling nights, and were an anomaly in the data field. The mean sighting distance was 44.4 yards with an average cluster size of 2.3. The complete observations sheets are attached as Appendix A.

Deer were only observed on 9.0 miles of the 16.0 mile transect. The segment of the transect with deer observations occurred west of I270 (Figure 2). In an effort to provide a more accurate estimate, we sampled the area west of I270 twice on the third survey instead of allocating effort to the area east of I270 where no deer were observed on the previous two sampling nights. West of I270 deer appeared to be evenly distributed with numerous observations occurring on Sheri Drive, Hunter Creek Road, Bourbon Red Drive, and Topping Lane. The estimated density for the west portion of the municipality (where deer were observed;  $\sim 2.2 \text{ mile}^2$ ) was 39.9 deer/mile<sup>2</sup> (95% Confidence interval: 26.6 – 59.9 deer/mile<sup>2</sup>). Therefore, we estimate that there were  $\sim 88$  deer ( $39.9 \text{ deer/mile}^2 \times 2.2 \text{ mile}^2 = 87.78 \text{ deer}$ ) inhabiting this area with a range of 58-131 at the 95% confidence interval. Please be advised that these estimates are pre-fawning with an expected increase in May and June.

No deer were observed east of I270 even though it comprised nearly 44% of the transect route (7.0 miles of transect) and  $\sim 49\%$  of the land area ( $\sim 2 \text{ mile}^2$ ). Based on these observations the deer densities east of I270 can be assumed to be  $< 10 \text{ deer/mi}^2$ . Residents in this area may experience some conflicts with deer, but the area would typically be considered to have low deer densities.

The demographics of the population were  $\sim 32\%$  yearling and adult females,  $\sim 53\%$  fawns, and 15% yearling and adult males based on observations during the survey. The data indicates a high recruitment rate of  $\sim 1.6$  fawns per adult doe.

Loss of a large block of habitat, due to development, between I270 and Des Peres Road, north of Wyndham Crossing Circle and south of English Walnut Drive, has likely displaced the deer inhabiting this area to other portions of the city. Residence surrounding this area would be expected to see a significant increase in the number of deer conflicts as displaced deer seek refuge in the surrounding habitat that remains. Field observations during the Distance Sampling route seem to support this. Numerous deer were observed on Bourbon Red Drive, an area that would be considered to have limited traditional deer habitat.

Integration of deer into more developed parts of the municipality is a direct result of traditional deer habitat loss and increasing deer densities. Deer utilize the forage that is available (i.e., landscape plantings) when traditional browse is not available, and seek cover in more sparse, less desirable, wooded corridors as densities increase. Conflicts between humans and deer increase as they embed themselves into these more highly developed areas.

Figure 1. Des Peres, MO Delineated Distance Sampling Route 17, 18, & 20 January 2016.





Figure 2. Des Peres, MO Area of Deer Observations, Distance Sampling 17-18 & 20 January 2016.





Project: Des Peres, MO

Date: 1/18/16

Time conducted: 22:00-02:30

Transect Length: 9.0 mile

Weather: 12 degrees Fahrenheit, Clear, Calm wind  
 Survey portion west of Interstate

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
3	1 AF / 2 F	54	10 Sheri
2	1 AF / 1 F	36	10 Sheri
1	1 AF	71	5 Sheri
1	1 F	42	5 Sheri
3	1 AF / 2 F	38	12825 Bourbon Red
1	1 F	12	12825 Bourbon Red
4	2 AF / 2 F	42	835 Bourbon Red
3	1 AF / 2 F	18	24 Topping Lane
1	1 AM	52	13250 Fairoyal
1	1 AM	42	12892 Whitehorse



Project: Des Peres, MO

Date: 1/20/16

Time conducted: 00:00-03:00 B

Transect Length: 9.0 mile

Weather: 22 degrees Fahrenheit, Clear, 5-10 mph wind  
Survey portion west of Interstate 270

# of deer/group	A-Female/Fawn/YM/A-Male	Perpendicular distance (yd)	Location
2	2 AM	68	3 Sheri
2	1 AF / 1 F	42	5 Sheri
3	1 AF / 2 F	19	424 Highland
2	1 AF / 1 F	48	Holleyhead / Hollyhead Ct
2	1 AM / 1 F	94	2359 Camberwell
2	1 AF / 1 F	54	2365 Camberwell
1	1 AF	45	4 Winds Farm/Bourbon Red
3	1 AF / 2 F	54	2869 Fairoyal
3	1 AF / 2 F	1	Barrett Meadow Drive
4	2 AF / 2 F	37	13020 Hunter Creek
4	2 AM / 2 F	31	12892 White Horse