

## **SUMMARY REPORT**

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

**Des Peres, Missouri**

**by**

**White Buffalo, Inc.**

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#### **Introduction/Methods**

The city of Des Peres is 4.3 mile<sup>2</sup> and bisected by I-270 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 I-270. 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 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 Michael Clayborne, Des Peres Public Safety Officer, as part of the survey team. Spotlighting surveys were conducted from ~22:00-03:00 h on 5, 8, and 9 January 2017. The transect was ~16 miles long, comprised of 7.0 miles east of I270, 9.0 miles west of I270, and surveyed once on 5 January 2017. On 8-9 January 2017 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 23–30 deer (8-13 groups of deer) on the 5 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 2 (on the road) to 84 yards from the road, with most observations occurring less than 60 yards. The mean sighting distance was 40.8 yards, slightly less than the 2016 mean of 44.4 yards. The average cluster size of 2.45 is similar to the 2016 result 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 I-270 (Figure 2). In an effort to provide a more

accurate estimate, we sampled the area west of I-270 twice on the second and third survey instead of allocating effort to the area east of I-270 where no deer were observed on the previous sampling night. West of I-270 deer appeared to be evenly distributed with numerous observations occurring on Hunter Creek Road, Bourbon Red Drive, 4 Winds Farm and Topping Lane. The estimated density for the west portion of the municipality (where deer were observed;  $\sim 2.2 \text{ mile}^2$ ) is 46.24 deer/mile<sup>2</sup> (95% Confidence interval: 28.5 – 74.9 deer/mile<sup>2</sup>). Therefore, we estimate that there were  $\sim 101$  deer ( $46.2 \text{ deer/mile}^2 \times 2.2 \text{ mile}^2 = 101.7$  deer) inhabiting this area with a range of 62.7-164 at the 95% confidence interval. The deer density estimate is  $\sim 15\%$  higher than last year's estimate. 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 I-270 can be assumed to be  $< 10$  deer/mi<sup>2</sup>. 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  $\sim 48\%$  yearling and adult females,  $\sim 42\%$  fawns, and 14% yearling and adult males based on observations during the survey. The data indicates a low recruitment rate of  $\sim 0.8$  fawn per adult doe, significantly less than the 1.6 fawns per doe observed in 2016.

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 and 4 Winds Farm, 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 5, 8, & 9 January 2017.

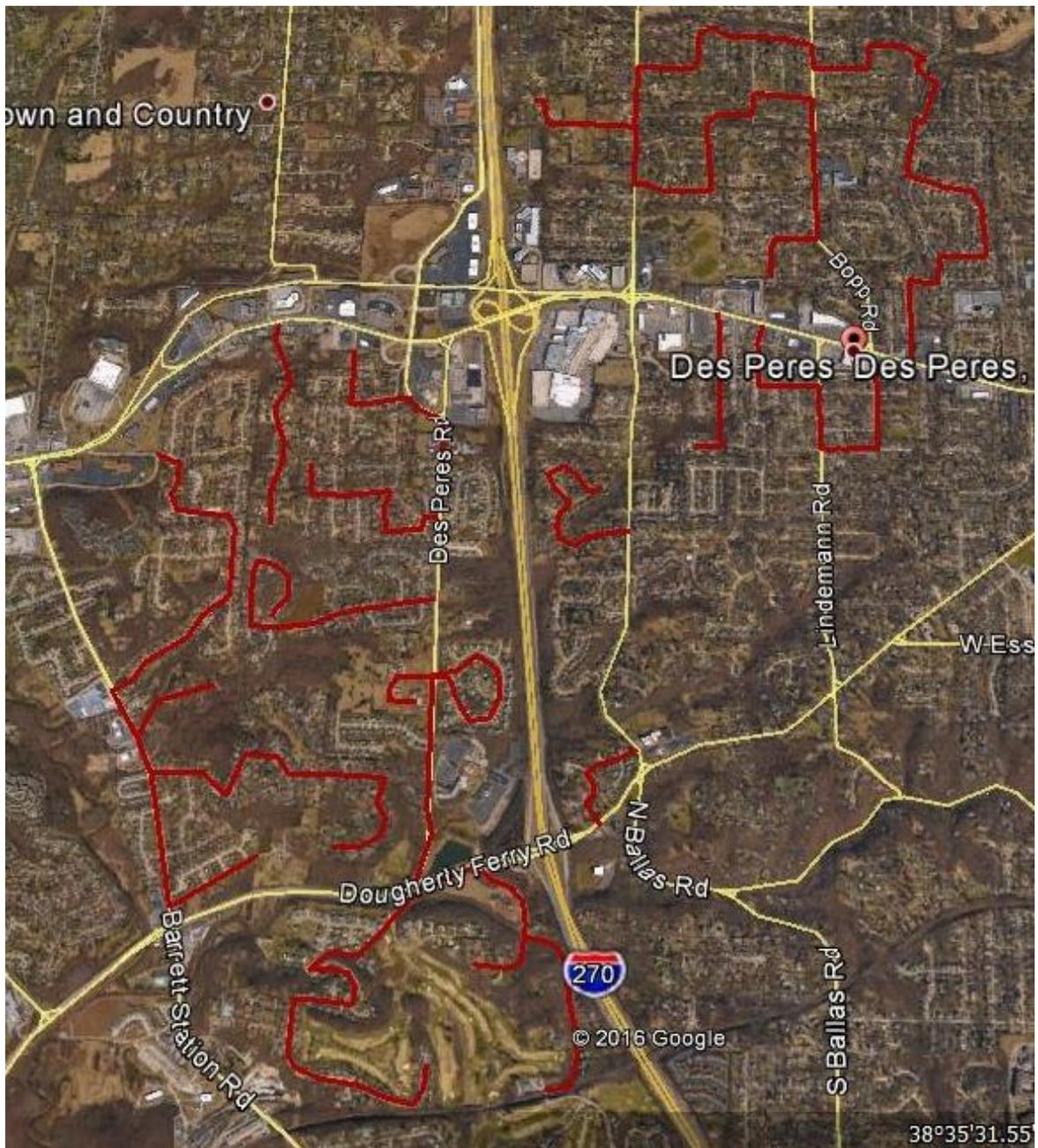


Figure 2. Des Peres, MO Area of Deer Observations, Distance Sampling 5, 8 & 9 January 2017.

