

SUMMARY REPORT

11 February 2018

Deer Distance Sampling Population Estimate

Town and Country, Missouri

by

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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. Spotlighting surveys were conducted from ~2200-0200 h on 3-5 February 2018.

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 were recorded. These data were then entered into a software program (Distance-Version 6.0) that estimates the deer density. The full data set is included as Appendix A.

Results/Discussion

The survey team counted from 55–75 deer (18-25 groups of deer) on the 3 transect replicates (Appendix A). Deer were observed from 5 to 135 yards from the road, with most observations occurring at less than 100 yards. The estimated density for the area surveyed (~10 mi²), using three transect data sets, was 25.7 deer/mile² (Confidence interval: 18 – 36.4), a reduction of 35 deer/mi² from the 2017 estimate of 61 deer/mi². The number of deer/cluster was 2.9, nearly identical to the survey in 2017. The mean sighting distance was 61.9 yards, 11 yards greater than the January 2017 mean of 50.9 yards.

Culling operations continued during the surveys, resulting in the reduction of 8 deer between the first and second survey and 5 deer between the second and third survey. An additional 12 deer were removed after the population estimate was complete. During the three survey nights, large groups of deer were detected along Mason Road in Queeny Park, at the junction of Williamsburg Estates and Clayton Road, and in the area of Town and Country Estates and Delvin Drive. The group of deer in the Town and Country Estates/Delvin Drive area contained 5 female adult deer that had been sterilized in previous non-lethal deer management efforts.

Aside from the three areas mentioned above deer appeared to be evenly distributed in the area. In an effort to better demonstrate where deer appeared during the Distance Sampling Survey maps were generated plotting the number of deer in each group and specific location of observations. Each replicate's observations are attached as Figure 1, 2, and 3 for the samples conducted on 3, 4, and 5 February 2018, respectively.

The demographics of the population were ~42% yearling and adult females, ~45% fawns, 6% yearling and adult males, and 6% undetermined based on observations during the survey. Although detection is difficult, due to the small ear tag size, several sterilized deer were

witnessed during the population estimate accounting for ~9% of the total observations and ~22% of the adult female observations.

The most notable impact of the deer management program was the reduction in observations along Topping Road. During the 2017 survey 55 deer were observed along Topping Road; during the 2018 survey only 8 deer were observe in this section of the route. Queeny Park continues to serve as a reservoir of unmanaged deer. The number of deer observed along Mason Road accounted for 15.5% of the total observations in a ~ 1.0 mile section of the ~21 mile survey route.

Figure 1. Distance Sampling Observations 3 February 2018 Town and Country, MO

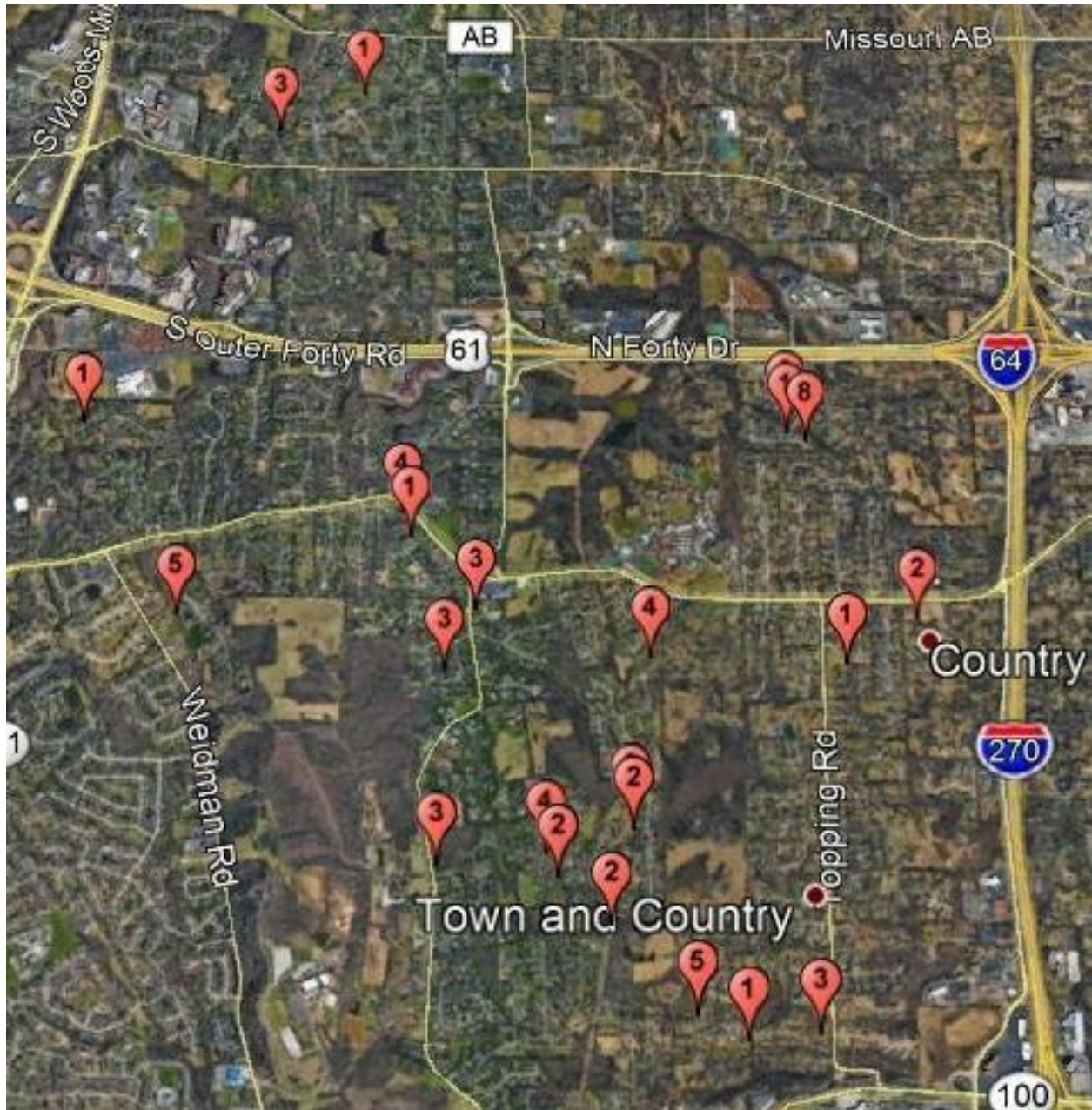


Figure 2. Distance Sampling Observations 4 February 2018 Town and Country, MO

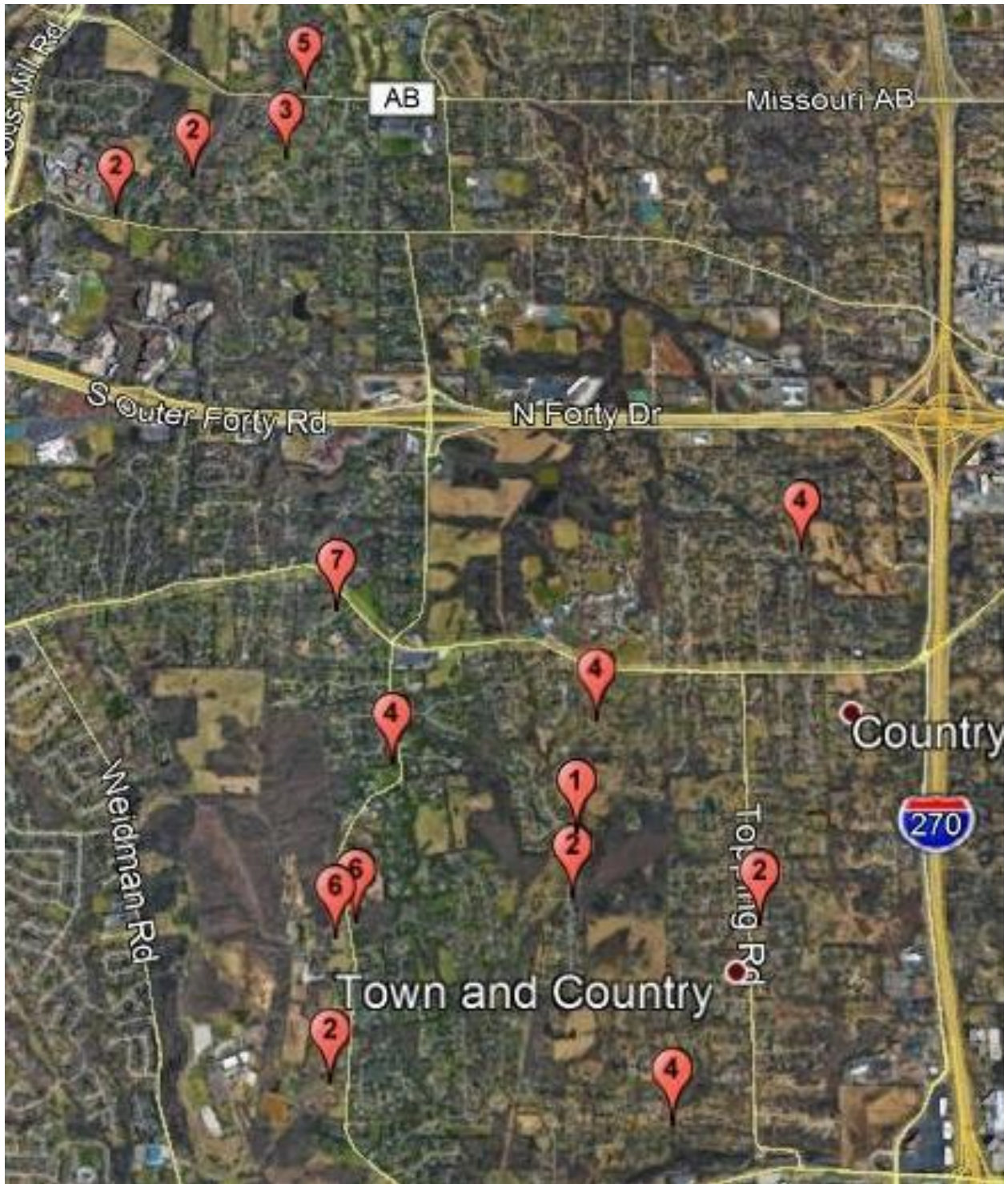


Figure 3. Distance Sampling Observations 5 January 2018 Town and Country, MO

