

SUMMARY REPORT ON SPOTLIGHT SURVEYS AND 2025 CATALINA DEER POPULATION

Goal

Long-term monitoring of mule deer population density using line transect surveys allows researchers to monitor overall population trends and general locations of invasive mule deer.

Why Spotlight Surveys?

Line transect surveys are nighttime road counts of deer using spotlights to count the number of deer. These surveys are done at night when the deer are most active and can be more easily seen via the shine of eyes in the light. The data from these surveys are analyzed using a model to estimate the population density of deer on the Island. Because the same methods and routes are used every year, we are able to track population trends over time. This is currently one of the best deer population estimate tools for Catalina and has been in use for decades. While no method is perfect, spotlight surveys are widely recognized in ecological science and is a well-established wildlife management technique used by biologists worldwide, including Texas Parks and Wildlife and Iowa Department of Natural Resources, to estimate deer density and population trends.

Spotlight surveys are practical, affordable and repeatable on Catalina Island. *All wildlife population estimates are **estimates** and no method can do a full census of every animal.*

Why not UAVs (Drones)?

UAV thermal surveys are an exciting and evolving tool, but the scientific literature consistently shows they underperform in dense shrub and chaparral environments compared to open habitats.

UAVs will be used immediately before and during deer depopulation to track progress against an initial baseline estimate, and not to generate a standalone population estimate. For population monitoring, we rely on spotlight distance sampling, the validated method with more than a decade of comparable data specific to Catalina's conditions.

Survey Method

Crews conduct nighttime spotlight surveys annually in early July along four established road transects (Fig. 1) distributed across the Island's interior, covering roughly 70.6 miles total. Each transect is driven twice within the same week to account for variable conditions, and the transects are all driven at the same time to ensure that no deer are double counted. For each group of deer that is detected, observers record the number of deer in the group, the distance traveled along the transect (miles), and use digital rangefinders to measure the perpendicular distance from the road to the deer. Additionally, observers record demographic and habitat data, including age, sex, antler

points, vegetation type, GPS location and topographic position. Surveyors are in the back of a vehicle with spotlights driving at very low speeds to record raw data.

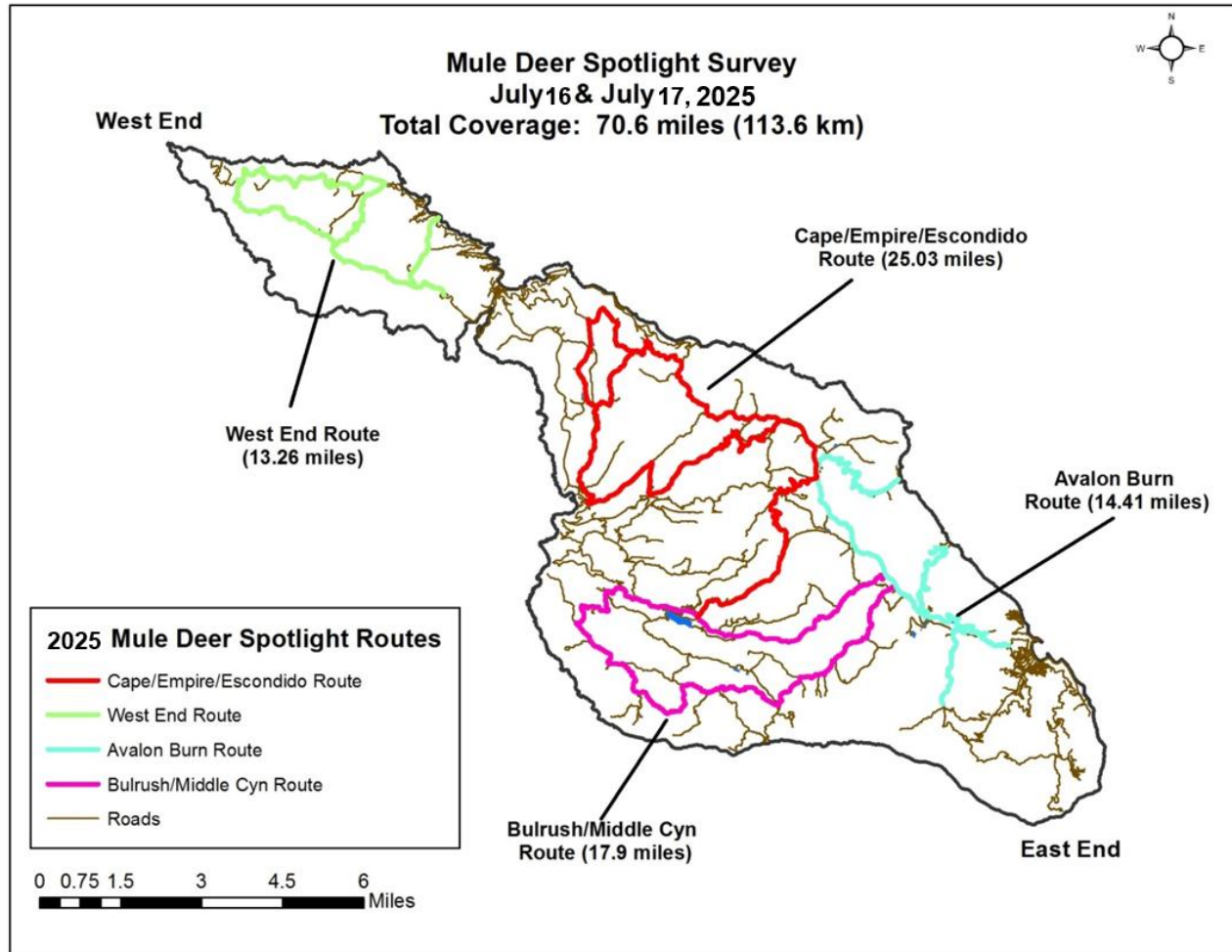


Figure 1. Deer spotlight routes driven in 2025.

Statistical Modeling

The raw survey data are input into Program DISTANCE, which uses a technique called distance sampling to estimate the density of deer (the number of deer per square mile). Essentially, it models the probability of detecting a deer based on how far the observed deer were from the transect line, rather than assuming every deer was seen. This model assumes that the farther the deer is from the road transect, the less likely it is to be detected. Using the number of deer, the length of the transect, and the distance from the road to each deer, the model produces a density estimate (deer per mi²). Interior densities in 2025 were 27.2 deer/mi² (CI = 23.9–31.0) over the study period. When multiplied by the area of the Island (75 mi²) this translates to a population of around 1,792 to 2,325 deer in the interior.

Avalon Surveyed Separately

A separate 14-mile transect was run in and around Avalon due to the markedly different urban environment. The density there came out to 167.1 deer/mi² – six times higher than the interior – with deer congregating in much larger groups, likely subsidized by gardens, landscaping and intentional feeding.

Key Limitations to Spotlight Surveys

Spotlight surveys remain an industry standard in establishing a population estimate and seeing trends over time. No population estimate is perfect and there are some limitations to the spotlight surveys as listed below.

- Surveys only happen once a year in summer, missing seasonal variation
- Terrain forces non-random sampling along existing roads, potentially missing deer in inaccessible areas
- Crew composition can vary year-to-year
- Spotighting likely undercounts fawns, which are small and tend to hide in June/July

Deer Population Heatmap

The deer population survey also helps scientists with learning about locations that deer gravitate toward. Below is a heatmap of the locations where deer densities are the highest on the Island along the spotlight survey routes.

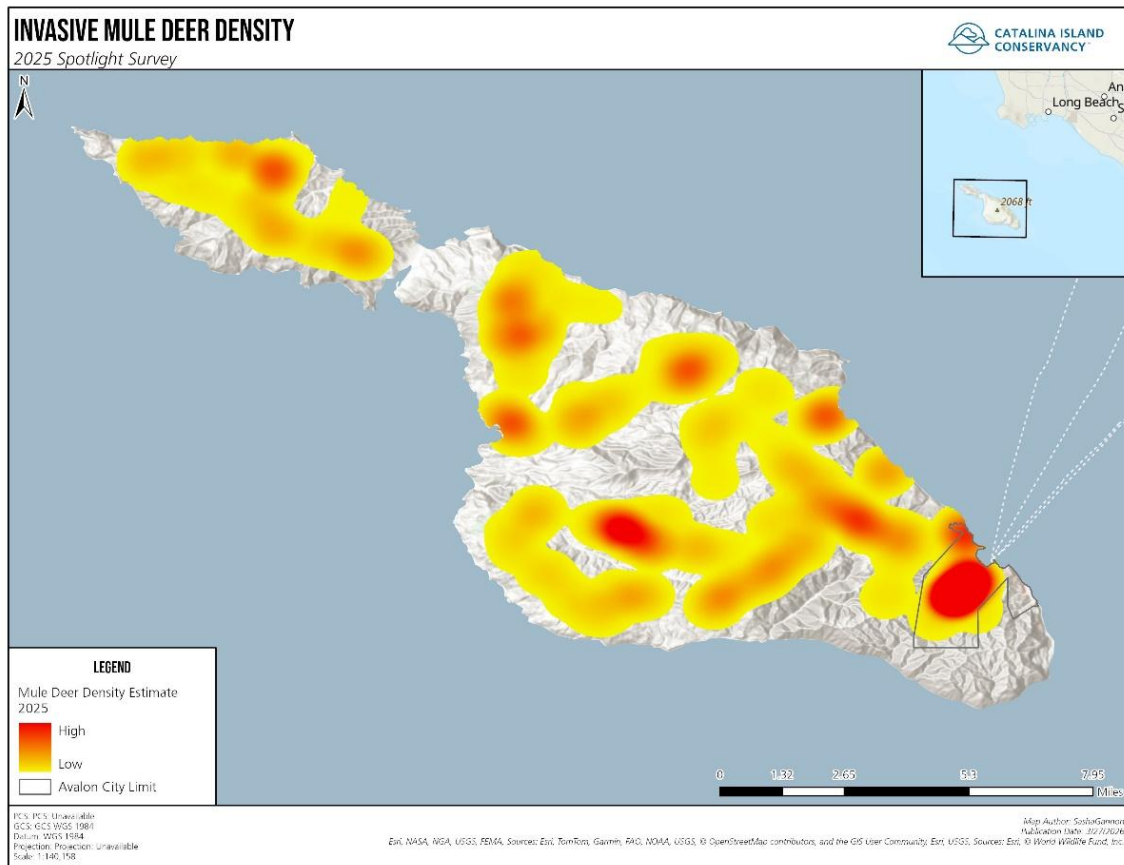


Figure 2. Deer densities based on GPS location data from spotlight routes driven in 2025.

Table 1. Deer Population Estimates Across Time

Deer population estimates with lower and upper 95% confidence intervals. NA = a year where the survey did not happen or only a fraction of the survey was conducted. Note that the Avalon transects are reported separately and were only conducted in 2021, 2024 and 2025.

Year	Estimate	Lower 95% CI	Upper 95% CI
2012	2619	2192	3142
2013	2541	2075	3104
2014	1227	1067	1416
2015	1474	1222	1804
2016	2372	2056	2716
2017	NA	NA	NA
2018	2061	1283	2683
2019	1341	1108	1575
2020	NA	NA	NA
2021	1771	1528	2053

Avalon 2021	151	95	239
2022	NA	NA	NA
2023	NA	NA	NA
2024	1800	1417	2295
Avalon 2024	55	43	70
2025	2040	1792	2325
Avalon 2025	149	69	322

Table 2. 2025 Raw Data - Catalina Interior Transects

Transect Length (mi)	Transect	# Deer in Group	Perpendicular Distance (yd)	ROUTE	DATE MTH/DATE/YR
15.1	Transect1_Night1	2	31.3	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	41.7	AvalonBurn	7/17/2025
15.1	Transect1_Night1	6	100.7	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	90.6	AvalonBurn	7/17/2025
15.1	Transect1_Night1	4	4.6	AvalonBurn	7/17/2025
15.1	Transect1_Night1	4	51.4	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	94.7	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	280.0	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	10.9	AvalonBurn	7/17/2025
15.1	Transect1_Night1	6	216.2	AvalonBurn	7/17/2025
15.1	Transect1_Night1	3	181.6	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	67.6	AvalonBurn	7/17/2025
15.1	Transect1_Night1	3	126.4	AvalonBurn	7/17/2025
15.1	Transect1_Night1	3	75.9	AvalonBurn	7/17/2025
15.1	Transect1_Night1	4	83.3	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	21.8	AvalonBurn	7/17/2025
15.1	Transect1_Night1	2	56.3	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	40.7	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	0.0	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	0.0	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	19.4	AvalonBurn	7/17/2025
15.1	Transect1_Night1	3	13.6	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	61.4	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	82.0	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	104.9	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	109.4	AvalonBurn	7/17/2025



15.1	Transect1_Night1	2	114.5	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	80.1	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	113.8	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	177.7	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	68.9	AvalonBurn	7/17/2025
15.1	Transect1_Night1	1	34.1	AvalonBurn	7/17/2025
23.7	Transect2_Night1	2	89.2	Cape	7/17/2025
23.7	Transect2_Night1	1	75.0	Cape	7/17/2025
23.7	Transect2_Night1	1	75.7	Cape	7/17/2025
23.7	Transect2_Night1	2	94.3	Cape	7/17/2025
23.7	Transect2_Night1	1	37.2	Cape	7/17/2025
23.7	Transect2_Night1	1	10.0	Cape	7/17/2025
23.7	Transect2_Night1	1	108.3	Cape	7/17/2025
23.7	Transect2_Night1	4	17.7	Cape	7/17/2025
23.7	Transect2_Night1	4	70.9	Cape	7/17/2025
23.7	Transect2_Night1	1	10.3	Cape	7/17/2025
23.7	Transect2_Night1	1	6.6	Cape	7/17/2025
23.7	Transect2_Night1	1	24.0	Cape	7/17/2025
23.7	Transect2_Night1	1	34.0	Cape	7/17/2025
23.7	Transect2_Night1	1	44.5	Cape	7/17/2025
23.7	Transect2_Night1	1	94.2	Cape	7/17/2025
23.7	Transect2_Night1	1	141.1	Cape	7/17/2025
23.7	Transect2_Night1	4	40.6	Cape	7/17/2025
23.7	Transect2_Night1	1	57.3	Cape	7/17/2025
23.7	Transect2_Night1	3	75.6	Cape	7/17/2025
23.7	Transect2_Night1	1	37.5	Cape	7/17/2025
23.7	Transect2_Night1	3	89.1	Cape	7/17/2025
23.7	Transect2_Night1	1	28.5	Cape	7/17/2025
23.7	Transect2_Night1	2	222.5	Cape	7/17/2025
23.7	Transect2_Night1	1	98.6	Cape	7/17/2025
23.7	Transect2_Night1	1	110.2	Cape	7/17/2025
23.7	Transect2_Night1	3	107.5	Cape	7/17/2025
23.7	Transect2_Night1	1	82.6	Cape	7/17/2025
23.7	Transect2_Night1	3	167.0	Cape	7/17/2025
23.7	Transect2_Night1	1	97.3	Cape	7/17/2025
23.7	Transect2_Night1	4	167.3	Cape	7/17/2025
23.7	Transect2_Night1	3	234.6	Cape	7/17/2025



23.7	Transect2_Night1	4	63.8	Cape	7/17/2025
23.7	Transect2_Night1	1	73.1	Cape	7/17/2025
23.7	Transect2_Night1	7	100.6	Cape	7/17/2025
23.7	Transect2_Night1	2	83.2	Cape	7/17/2025
23.7	Transect2_Night1	1	57.3	Cape	7/17/2025
23.7	Transect2_Night1	2	56.6	Cape	7/17/2025
23.7	Transect2_Night1	2	31.2	Cape	7/17/2025
23.7	Transect2_Night1	1	101.5	Cape	7/17/2025
23.7	Transect2_Night1	1	72.6	Cape	7/17/2025
23.7	Transect2_Night1	4	91.0	Cape	7/17/2025
23.7	Transect2_Night1	3	47.8	Cape	7/17/2025
23.7	Transect2_Night1	3	31.2	Cape	7/17/2025
23.7	Transect2_Night1	1	78.1	Cape	7/17/2025
17.9	Transect3_Night1	4	64.0	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	30.1	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	19.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	11.5	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	108.3	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	18.6	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	84.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	49.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	59.6	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	93.0	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	113.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	250.4	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	4	27.3	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	113.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	18.6	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	33.4	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	37.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	21.9	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	54.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	122.5	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	41.6	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	60.1	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	4	42.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	41.6	MiddleCanyon	7/17/2025



17.9	Transect3_Night1	2	54.1	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	41.0	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	32.3	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	7.5	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	66.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	191.4	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	4	39.4	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	172.8	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	113.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	136.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	50.3	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	251.5	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	124.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	82.0	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	27.3	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	84.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	271.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	156.4	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	0.0	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	36.6	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	136.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	196.8	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	202.3	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	4	158.6	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	82.0	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	2	139.4	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	5	196.8	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	196.8	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	3	114.8	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	0.0	MiddleCanyon	7/17/2025
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17.9	Transect3_Night1	1	230.2	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	165.7	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	185.9	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	1	309.5	MiddleCanyon	7/17/2025
17.9	Transect3_Night1	4	115.4	MiddleCanyon	7/17/2025



13.3	Transect4_Night1	11	150.0	WestEnd	7/17/2025
13.3	Transect4_Night1	3	17.9	WestEnd	7/17/2025
13.3	Transect4_Night1	2	8.7	WestEnd	7/17/2025
13.3	Transect4_Night1	1	234.0	WestEnd	7/17/2025
13.3	Transect4_Night1	2	130.5	WestEnd	7/17/2025
13.3	Transect4_Night1	1	118.2	WestEnd	7/17/2025
13.3	Transect4_Night1	4	59.4	WestEnd	7/17/2025
13.3	Transect4_Night1	1	169.3	WestEnd	7/17/2025
13.3	Transect4_Night1	1	60.3	WestEnd	7/17/2025
13.3	Transect4_Night1	1	25.0	WestEnd	7/17/2025
13.3	Transect4_Night1	2	167.7	WestEnd	7/17/2025
13.3	Transect4_Night1	1	184.2	WestEnd	7/17/2025
13.3	Transect4_Night1	1	163.3	WestEnd	7/17/2025
13.3	Transect4_Night1	1	112.8	WestEnd	7/17/2025
13.3	Transect4_Night1	1	70.3	WestEnd	7/17/2025
13.3	Transect4_Night1	3	51.9	WestEnd	7/17/2025
13.3	Transect4_Night1	1	151.4	WestEnd	7/17/2025
13.3	Transect4_Night1	1	110.7	WestEnd	7/17/2025
13.3	Transect4_Night1	1	236.8	WestEnd	7/17/2025
13.3	Transect4_Night1	1	74.1	WestEnd	7/17/2025
13.3	Transect4_Night1	2	45.2	WestEnd	7/17/2025
13.3	Transect4_Night1	1	22.9	WestEnd	7/17/2025
13.3	Transect4_Night1	3	64.0	WestEnd	7/17/2025
13.3	Transect4_Night1	1	117.2	WestEnd	7/17/2025
13.3	Transect4_Night1	1	26.6	WestEnd	7/17/2025
13.3	Transect4_Night1	3	91.4	WestEnd	7/17/2025
13.3	Transect4_Night1	1	284.3	WestEnd	7/17/2025
13.3	Transect4_Night1	1	10.9	WestEnd	7/17/2025
13.3	Transect4_Night1	1	17.5	WestEnd	7/17/2025
13.3	Transect4_Night1	1	38.3	WestEnd	7/17/2025
15.6	Transect1_Night2	1	100.4	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	81.8	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	292.0	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	36.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	65.3	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	29.0	AvalonBurn	7/18/2025
15.6	Transect1_Night2	4	43.2	AvalonBurn	7/18/2025



15.6	Transect1_Night2	2	157.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	23.5	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	51.4	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	96.8	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	148.1	AvalonBurn	7/18/2025
15.6	Transect1_Night2	3	134.4	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	134.7	AvalonBurn	7/18/2025
15.6	Transect1_Night2	3	96.7	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	104.4	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	83.9	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	140.5	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	110.9	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	97.0	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	27.3	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	52.3	AvalonBurn	7/18/2025
15.6	Transect1_Night2	4	69.7	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	121.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	3	106.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	99.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	3	156.9	AvalonBurn	7/18/2025
15.6	Transect1_Night2	3	169.2	AvalonBurn	7/18/2025
15.6	Transect1_Night2	5	59.7	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	21.9	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	22.4	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	6.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	44.5	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	5.5	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	160.8	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	10.9	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	76.0	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	30.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	3	154.2	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	109.4	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	78.8	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	81.0	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	27.3	AvalonBurn	7/18/2025
15.6	Transect1_Night2	2	19.1	AvalonBurn	7/18/2025



15.6	Transect1_Night2	1	125.9	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	158.6	AvalonBurn	7/18/2025
15.6	Transect1_Night2	1	41.4	AvalonBurn	7/18/2025
23.5	Transect2_Night2	2	78.4	Cape	7/18/2025
23.5	Transect2_Night2	1	100.4	Cape	7/18/2025
23.5	Transect2_Night2	1	72.7	Cape	7/18/2025
23.5	Transect2_Night2	1	185.6	Cape	7/18/2025
23.5	Transect2_Night2	2	18.9	Cape	7/18/2025
23.5	Transect2_Night2	3	113.2	Cape	7/18/2025
23.5	Transect2_Night2	1	106.1	Cape	7/18/2025
23.5	Transect2_Night2	1	48.0	Cape	7/18/2025
23.5	Transect2_Night2	1	45.5	Cape	7/18/2025
23.5	Transect2_Night2	1	218.7	Cape	7/18/2025
23.5	Transect2_Night2	2	20.7	Cape	7/18/2025
23.5	Transect2_Night2	2	59.3	Cape	7/18/2025
23.5	Transect2_Night2	7	34.3	Cape	7/18/2025
23.5	Transect2_Night2	5	145.0	Cape	7/18/2025
23.5	Transect2_Night2	1	0.0	Cape	7/18/2025
23.5	Transect2_Night2	1	118.5	Cape	7/18/2025
23.5	Transect2_Night2	1	74.8	Cape	7/18/2025
23.5	Transect2_Night2	3	120.3	Cape	7/18/2025
23.5	Transect2_Night2	1	74.3	Cape	7/18/2025
23.5	Transect2_Night2	8	73.9	Cape	7/18/2025
23.5	Transect2_Night2	1	248.9	Cape	7/18/2025
23.5	Transect2_Night2	1	159.7	Cape	7/18/2025
23.5	Transect2_Night2	3	116.8	Cape	7/18/2025
23.5	Transect2_Night2	2	120.3	Cape	7/18/2025
23.5	Transect2_Night2	3	35.7	Cape	7/18/2025
23.5	Transect2_Night2	1	70.1	Cape	7/18/2025
23.5	Transect2_Night2	1	106.0	Cape	7/18/2025
23.5	Transect2_Night2	5	47.1	Cape	7/18/2025
23.5	Transect2_Night2	4	0.0	Cape	7/18/2025
23.5	Transect2_Night2	3	126.4	Cape	7/18/2025
23.5	Transect2_Night2	3	33.8	Cape	7/18/2025
23.5	Transect2_Night2	2	295.3	Cape	7/18/2025
23.5	Transect2_Night2	1	240.6	Cape	7/18/2025
23.5	Transect2_Night2	2	105.8	Cape	7/18/2025



23.5	Transect2_Night2	3	177.2	Cape	7/18/2025
23.5	Transect2_Night2	1	31.7	Cape	7/18/2025
23.5	Transect2_Night2	1	36.1	Cape	7/18/2025
23.5	Transect2_Night2	2	155.1	Cape	7/18/2025
23.5	Transect2_Night2	2	35.0	Cape	7/18/2025
23.5	Transect2_Night2	2	23.2	Cape	7/18/2025
23.5	Transect2_Night2	1	72.2	Cape	7/18/2025
17.7	Transect3_Night2	1	123.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	112.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	34.4	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	70.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	37.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	100.1	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	148.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	34.4	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	48.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	172.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	300.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	217.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	108.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	242.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	3	108.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	31.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	11	36.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	6	19.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	30.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	23.5	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	3	138.1	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	3	71.9	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	6	41.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	45.9	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	4	18.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	334.1	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	171.1	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	35.5	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	79.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	273.4	MiddleCanyon	7/18/2025



17.7	Transect3_Night2	2	148.3	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	171.3	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	37.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	101.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	169.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	81.5	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	156.4	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	73.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	21.3	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	12.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	3	93.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	76.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	100.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	180.4	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	5	148.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	131.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	4	183.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	227.5	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	44.3	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	88.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	207.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	141.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	165.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	117.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	188.1	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	353.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	191.4	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	2	102.8	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	88.0	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	102.3	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	88.6	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	78.7	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	49.2	MiddleCanyon	7/18/2025
17.7	Transect3_Night2	1	0.0	MiddleCanyon	7/18/2025
13.5	Transect4_Night2	1	59.1	WestEnd	7/18/2025
13.5	Transect4_Night2	1	144.9	WestEnd	7/18/2025
13.5	Transect4_Night2	3	119.8	WestEnd	7/18/2025



13.5	Transect4_Night2	2	128.3	WestEnd	7/18/2025
13.5	Transect4_Night2	1	67.3	WestEnd	7/18/2025
13.5	Transect4_Night2	2	64.5	WestEnd	7/18/2025
13.5	Transect4_Night2	1	60.1	WestEnd	7/18/2025
13.5	Transect4_Night2	1	22.5	WestEnd	7/18/2025
13.5	Transect4_Night2	2	100.9	WestEnd	7/18/2025
13.5	Transect4_Night2	1	84.3	WestEnd	7/18/2025
13.5	Transect4_Night2	1	30.6	WestEnd	7/18/2025
13.5	Transect4_Night2	2	0.0	WestEnd	7/18/2025
13.5	Transect4_Night2	1	48.0	WestEnd	7/18/2025
13.5	Transect4_Night2	2	77.9	WestEnd	7/18/2025
13.5	Transect4_Night2	2	103.9	WestEnd	7/18/2025
13.5	Transect4_Night2	3	49.2	WestEnd	7/18/2025
13.5	Transect4_Night2	1	235.1	WestEnd	7/18/2025
13.5	Transect4_Night2	2	29.5	WestEnd	7/18/2025
13.5	Transect4_Night2	3	43.7	WestEnd	7/18/2025
13.5	Transect4_Night2	2	146.5	WestEnd	7/18/2025
13.5	Transect4_Night2	1	59.6	WestEnd	7/18/2025
13.5	Transect4_Night2	4	56.9	WestEnd	7/18/2025
13.5	Transect4_Night2	2	145.5	WestEnd	7/18/2025
13.5	Transect4_Night2	2	60.1	WestEnd	7/18/2025
13.5	Transect4_Night2	1	10.9	WestEnd	7/18/2025
13.5	Transect4_Night2	1	27.3	WestEnd	7/18/2025
13.5	Transect4_Night2	1	20.8	WestEnd	7/18/2025

Table 3. Raw Data - Avalon Transects

Transect length (mi)	Transect	# Deer in Group	Perpendicular Distance (yd)	ROUTE	DATE MTH/DATE/YR
7.6	Transect1_Night1	1	76.9	Avalon Town	7/15/2025
7.6	Transect1_Night1	14	55.3	Avalon Town	7/15/2025
7.6	Transect1_Night1	6	110.8	Avalon Town	7/15/2025
7.6	Transect1_Night1	7	48.2	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	32.8	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	109.6	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	0.0	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	10.1	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	15.2	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	19.4	Avalon Town	7/15/2025



7.6	Transect1_Night1	6	21.3	Avalon Town	7/15/2025
7.6	Transect1_Night1	13	60.6	Avalon Town	7/15/2025
7.6	Transect1_Night1	6	44.3	Avalon Town	7/15/2025
7.6	Transect1_Night1	5	61.8	Avalon Town	7/15/2025
7.6	Transect1_Night1	3	116.7	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	32.4	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	50.4	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	83.3	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	26.9	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	83.8	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	21.9	Avalon Town	7/15/2025
7.6	Transect1_Night1	9	103.1	Avalon Town	7/15/2025
7.6	Transect1_Night1	4	201.0	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	30.1	Avalon Town	7/15/2025
7.6	Transect1_Night1	3	61.2	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	34.7	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	9.4	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	5.5	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	108.6	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	29.5	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	11.6	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	12.6	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	11.3	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	5.5	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	44.8	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	8.7	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	29.5	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	27.6	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	8.7	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	5.5	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	9.8	Avalon Town	7/15/2025
7.6	Transect1_Night1	3	115.2	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	20.3	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	16.1	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	10.2	Avalon Town	7/15/2025
7.6	Transect1_Night1	1	75.5	Avalon Town	7/15/2025
7.6	Transect1_Night1	2	46.2	Avalon Town	7/15/2025



7.6	Transect1_Night1	3	37.1	Avalon Town	7/15/2025
7.4	Transect1_Night2	2	53.1	Avalon Town	7/16/2025
7.4	Transect1_Night2	3	16.6	Avalon Town	7/16/2025
7.4	Transect1_Night2	3	88.1	Avalon Town	7/16/2025
7.4	Transect1_Night2	5	94.5	Avalon Town	7/16/2025
7.4	Transect1_Night2	4	105.8	Avalon Town	7/16/2025
7.4	Transect1_Night2	13	50.7	Avalon Town	7/16/2025
7.4	Transect1_Night2	11	52.1	Avalon Town	7/16/2025
7.4	Transect1_Night2	12	117.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	16	72.6	Avalon Town	7/16/2025
7.4	Transect1_Night2	28	58.4	Avalon Town	7/16/2025
7.4	Transect1_Night2	14	69.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	4	68.6	Avalon Town	7/16/2025
7.4	Transect1_Night2	2	41.3	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	60.8	Avalon Town	7/16/2025
7.4	Transect1_Night2	2	23.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	6	39.9	Avalon Town	7/16/2025
7.4	Transect1_Night2	7	41.6	Avalon Town	7/16/2025
7.4	Transect1_Night2	3	31.8	Avalon Town	7/16/2025
7.4	Transect1_Night2	6	40.5	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	0.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	11.2	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	54.2	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	0.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	5	10.3	Avalon Town	7/16/2025
7.4	Transect1_Night2	2	21.9	Avalon Town	7/16/2025
7.4	Transect1_Night2	2	9.8	Avalon Town	7/16/2025
7.4	Transect1_Night2	3	10.9	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	15.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	5	13.2	Avalon Town	7/16/2025
7.4	Transect1_Night2	6	24.0	Avalon Town	7/16/2025
7.4	Transect1_Night2	3	8.2	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	8.7	Avalon Town	7/16/2025
7.4	Transect1_Night2	1	25.2	Avalon Town	7/16/2025