Cape Girardeau
Deer Survey Results

Missouri Department of Conservation

Southeast Missouri State University

Objectives

- To determine densities of deer in Cape Girardeau.

•Provide the City with this information to help them make informed decisions.

Deer Densities

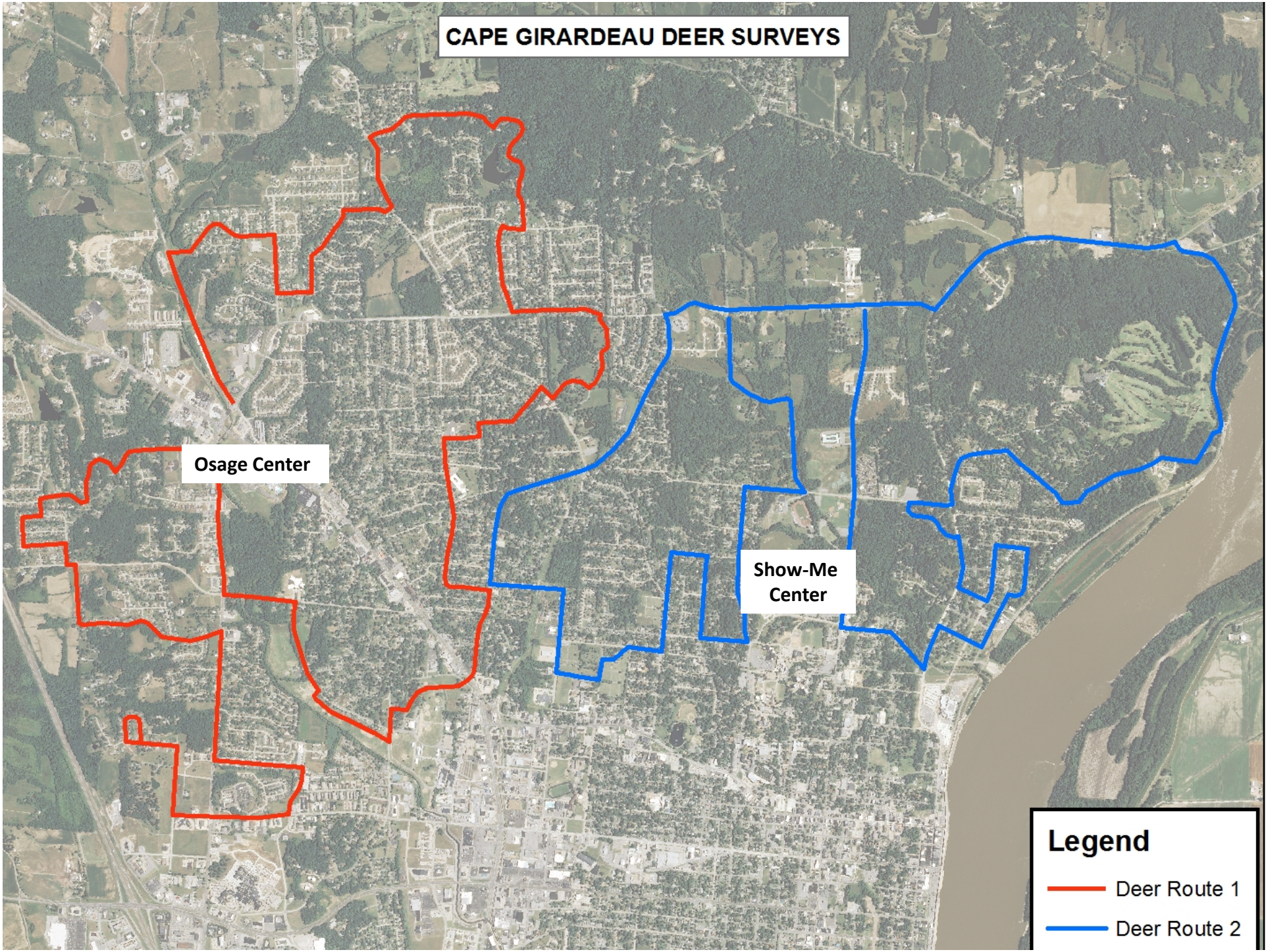
Optimal Deer Density =
20 deer/mi2

Social carrying capacity =
~40 deer/mi2

Biological carrying capacity = ???

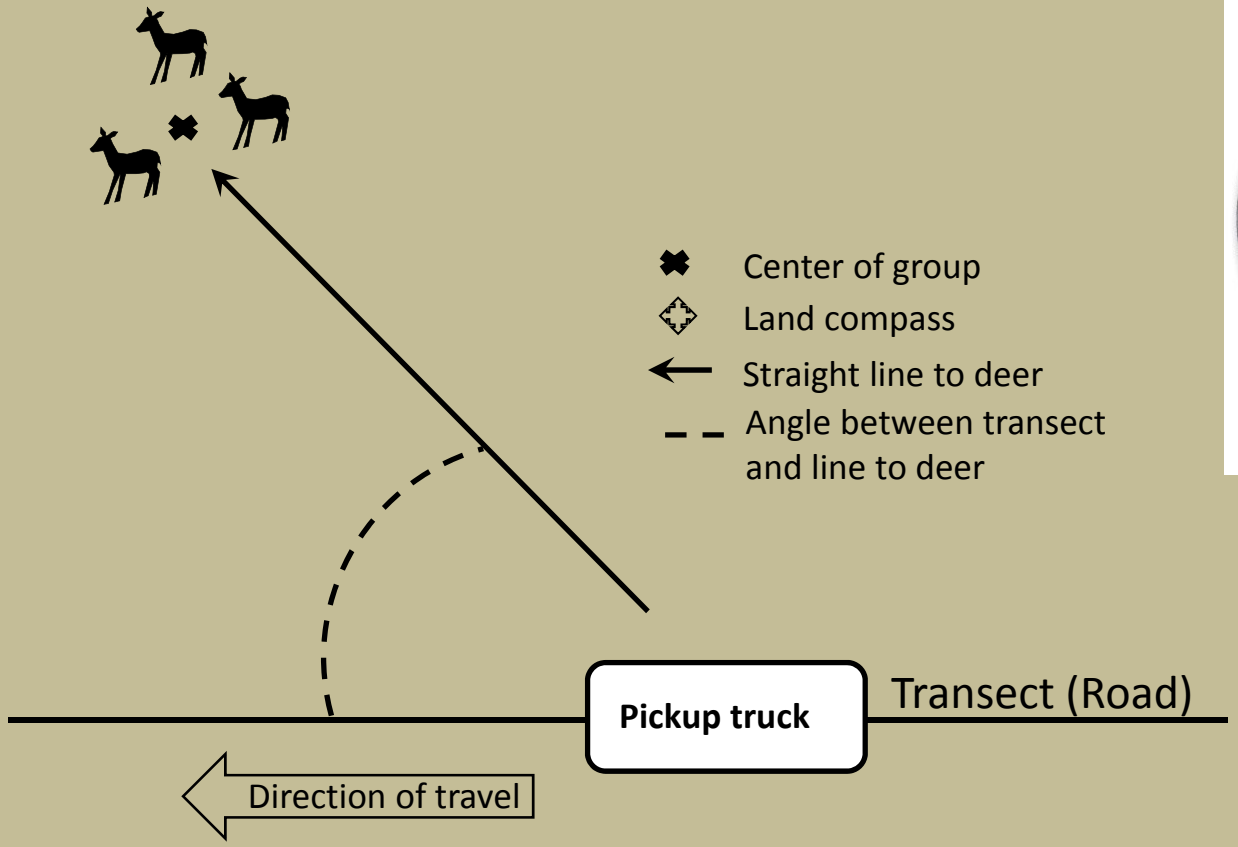
Cape Deer Survey Methods

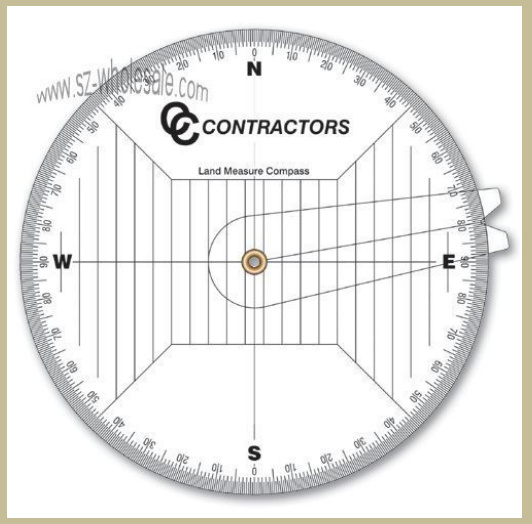
- 2 – 14 mile survey routes established randomly and run simultaneously.
- Routes run 4 separate times during leaf off
- December, January (2), February
- Started each route around 1900 hrs and ended at ~2200 hrs.
- Utilized standard distance sampling methods that are used across the country.


CAPE GIRARDEAU DEER SURVEYS
Osage Center
Show-Me Center
Legend
Deer Route 1
Deer Route 2

Cape Deer Survey Methods

- Travel through town at a consistent speed of 5mph.
- Scan both sides of transect (road) with spotlights.
- Determine distance between observer and deer, document location with GPS.
- Determine age, sex, and number of deer observed.





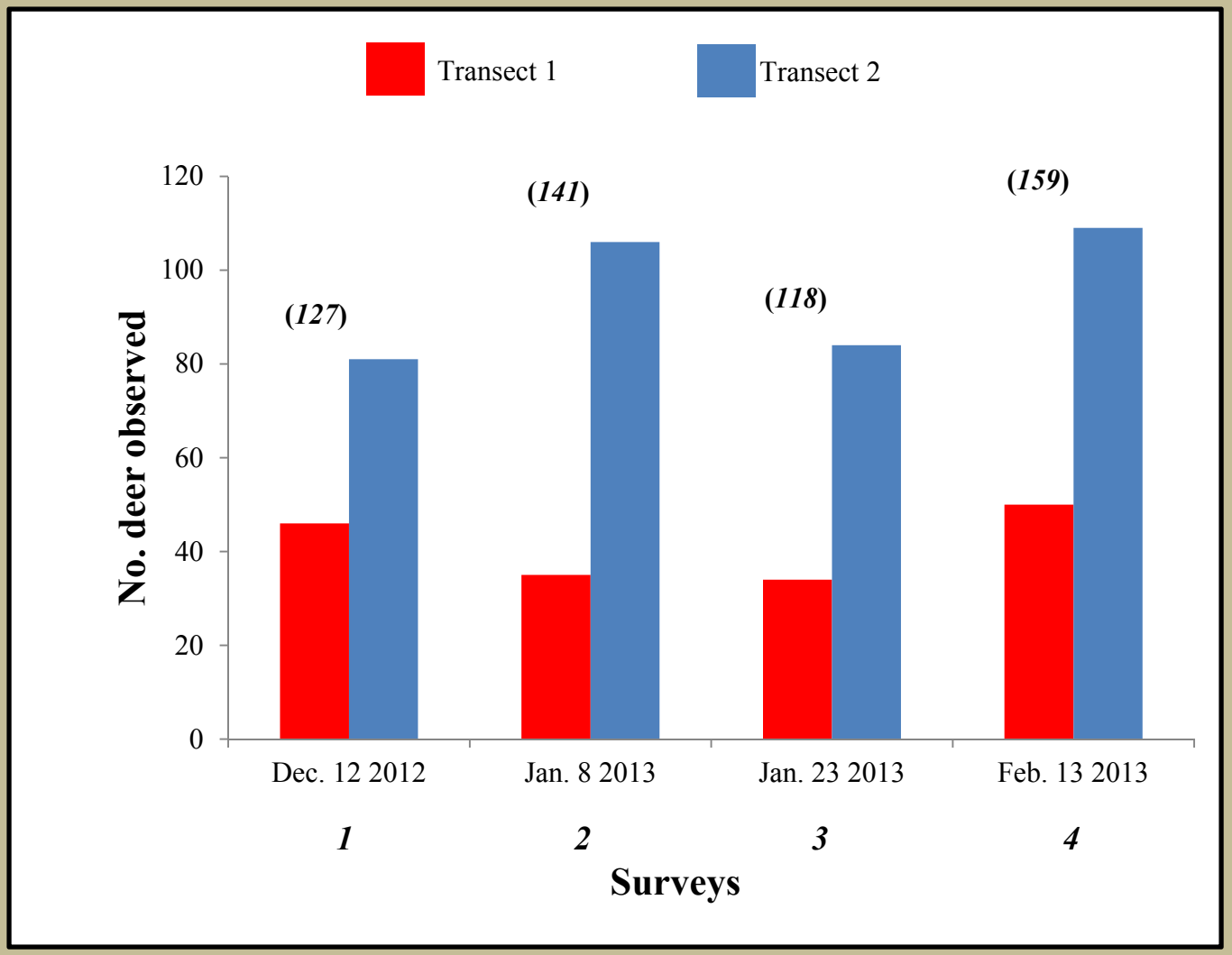
Calculation of the azimuth using a land compass for distance-based sampling techniques used during deer survey

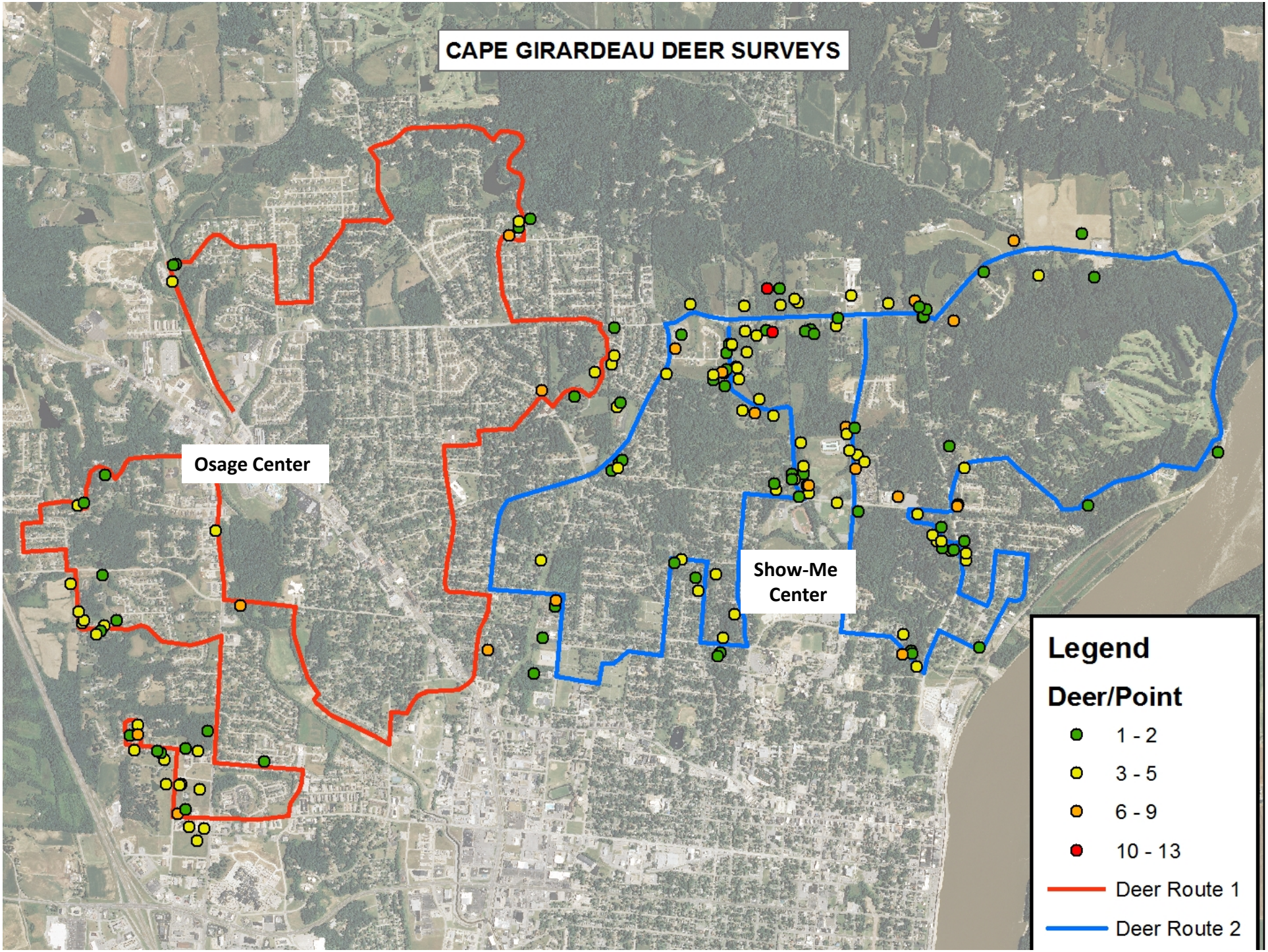

4x4

Results

Analyze data using the statistical Program “Distance”

Summary of Data




CAPE GIRARDEAU DEER SURVEYS
Osage Center
Show-Me Center
Legend
Deer/Point
1 - 2
3 - 5
6 - 9
10 - 13
Deer Route 1
Deer Route 2

Program Distance Estimate

Table 2. White-tailed deer density (deer per square mile) estimates based on analyses performed in program Distance 6.0 with default settings; assuming weak monotonicity, using the mean of observed clusters, and implementing a simple polynomial regression of the detection function. Included are: percent coefficient of variation (%CV), degrees of freedom (df), Standard Error (SE), upper and lower 95% confidence intervals (UCI/LCI) of the estimate, and spread of confidence intervals (CI spread). Note: estimates are included for individual surveys and sequentially combined datasets.

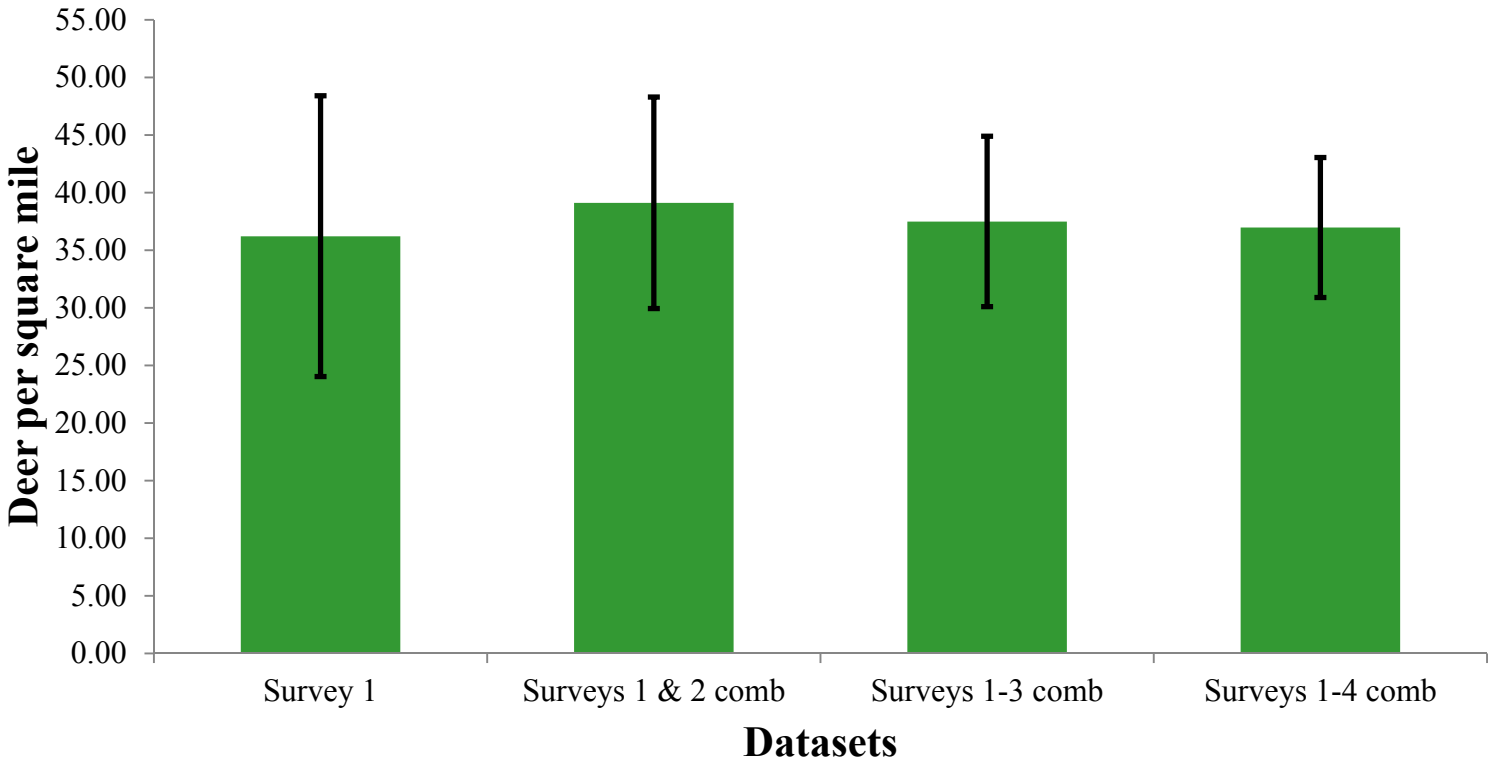
Dataset	Density estimate (deer/square mile)	%CV	df	SE	95% LCI	95% UCI	95% CI spread
Survey 1	36.22	33.65	1.67	12.19	6.562	199.89	193.33
Survey 2	38.16	44.29	1.33	16.90	1.80	811.21	809.42
Survey 3	33.56	48.02	1.30	16.12	1.11	1015.9	1014.79
Survey 4	35.06	39.40	1.40	13.81	2.76	444.63	441.87
Survey 1 & 2 combined	39.12	23.47	5.02	9.18	21.59	70.90	49.31
Survey 1, 2, & 3 combined	37.49	19.74	8.26	7.40	23.95	58.71	34.76
Survey 1, 2, 3, & 4 combined	**36.97**	16.46	11.63	6.08	25.86	52.85	26.99

Key points:

-Density estimate stays consistent

-Standard error and confidence intervals improve considerably = greater confidence

Summary of Distance-based Findings



Key points:

-Density estimate stays consistent

-Standard error bar shortens considerably = greater confidence

Program Distance Estimate

Dataset	No. Obs.	No. Deer	Density estimate (deer/square mile)	%CV	df	SE	95% LCI	95% UCI	95% CI spread
Transect 1	48	165	20.73	17.47	33.07	3.62	14.57	29.19	14.63
Transect 2	116	380	51.40	9.34	231.00	4.80	42.77	61.75	18.98

Key points:
-Density estimate varies between transects.
-Demonstrates variability of deer densities within the city.

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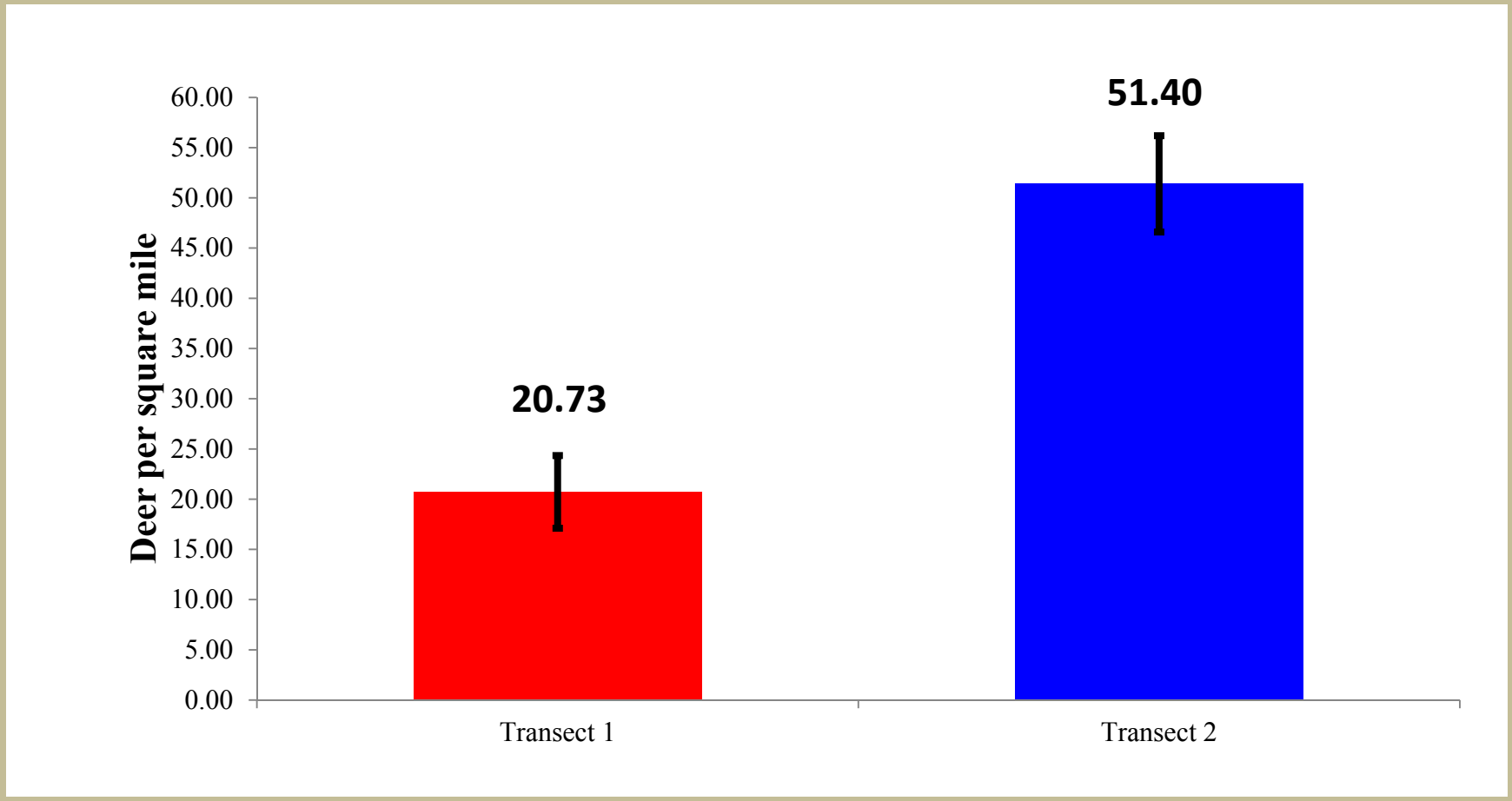

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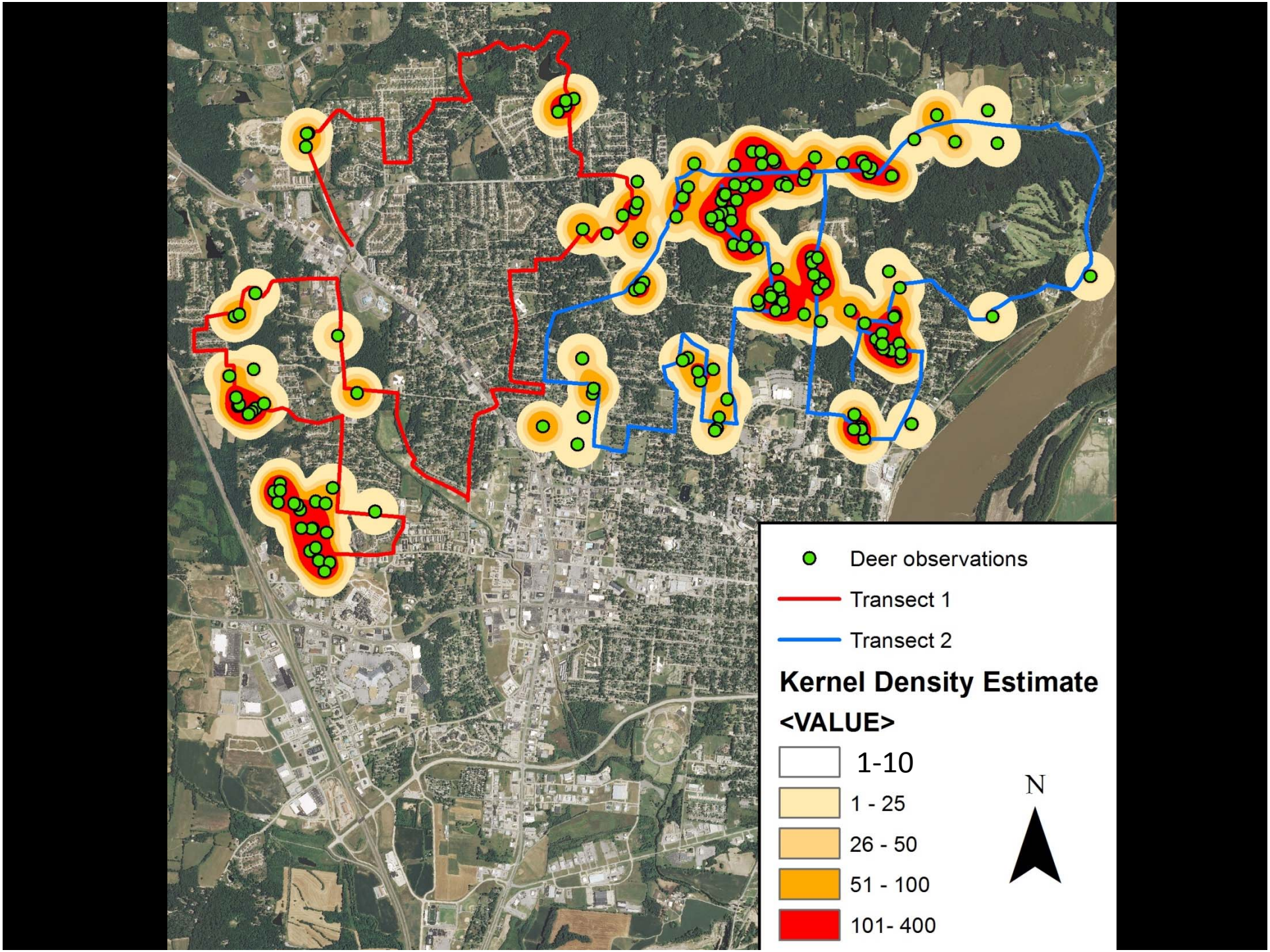
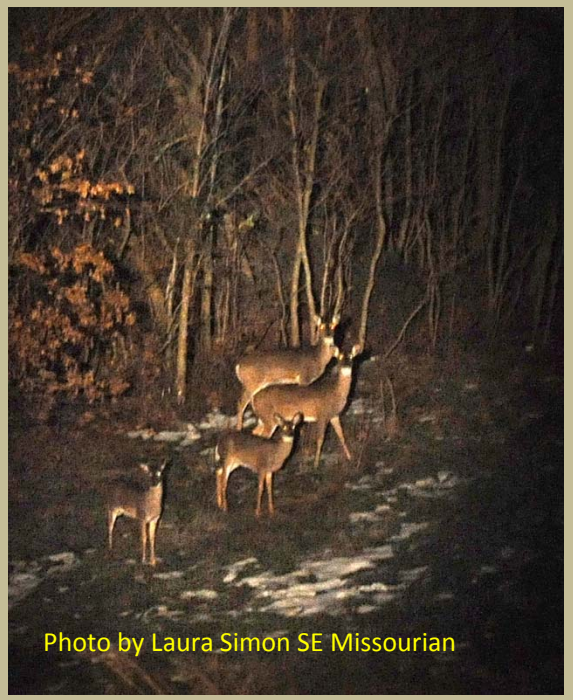

Deer observations
Transect 1
Transect 2
Kernel Density Estimate
<VALUE>
1-10
1 - 25
26 - 50
51 - 100
101- 400
N

Deer Densities



Optimal Deer Density = 20 deer/mi2

Cape Girardeau Deer Density = 36.97

Social carrying capacity = ~40 deer/mi2

Conclusions

- Continue to monitor deer populations in the city.
- Continue to Cooperate with MDC and network with other communities.
- Strive to keep residents informed on deer related issues