# Deer Density on Blackwater

## Results from Distance Sampling Surveys

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# Introduction

<u>Objectives</u>

I. Estimate current deer density

II. Are densities greater in agricultural areas?

III. Establish protocols for long-term monitoring

# Why Distance Sampling?

- Established, proven methodology

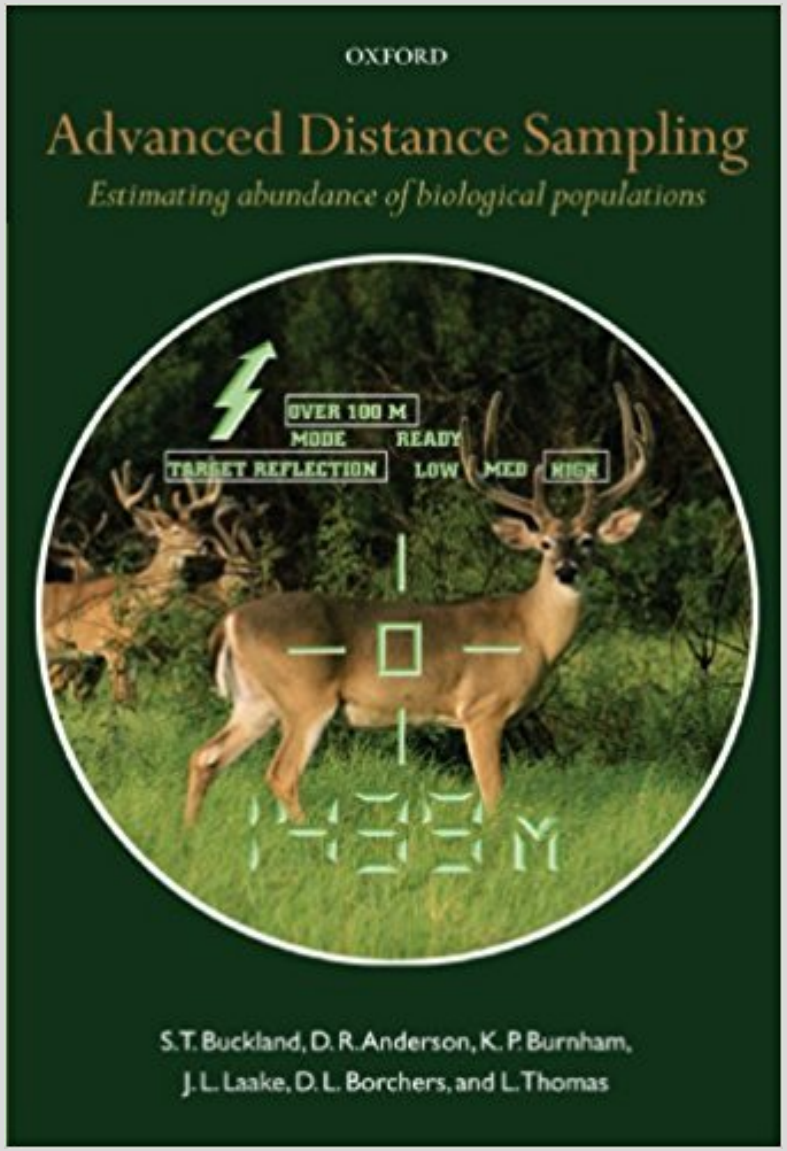
- Affordable

- Covers a large area

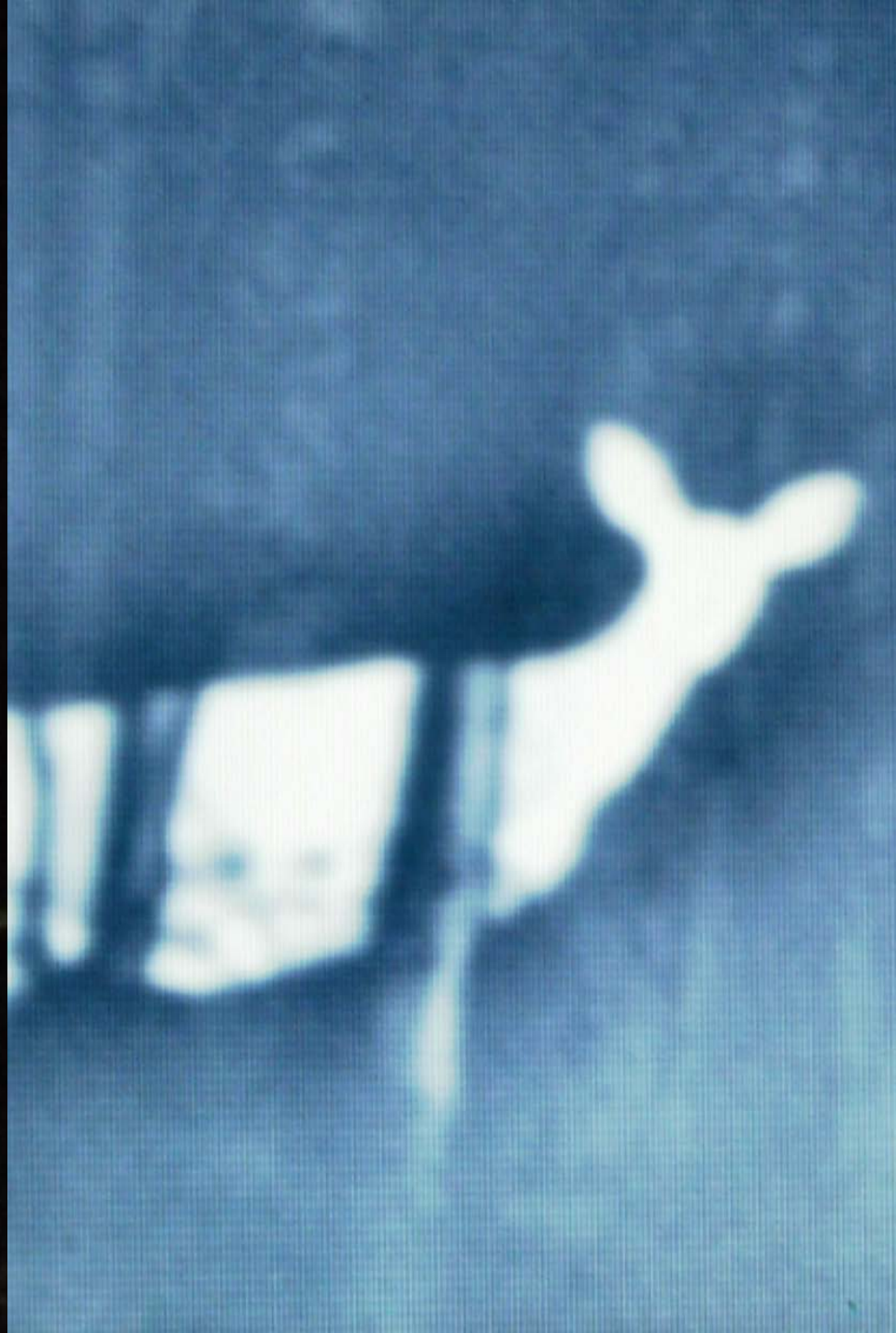
- Protocols are repeatable

- Accurately tracks population trends

- Not sensitive to changes in harvest regulations



FLIR®



# Distance Sampling

- September 2017

- 1 hour after sunset

- speeds 10 – 15 mph

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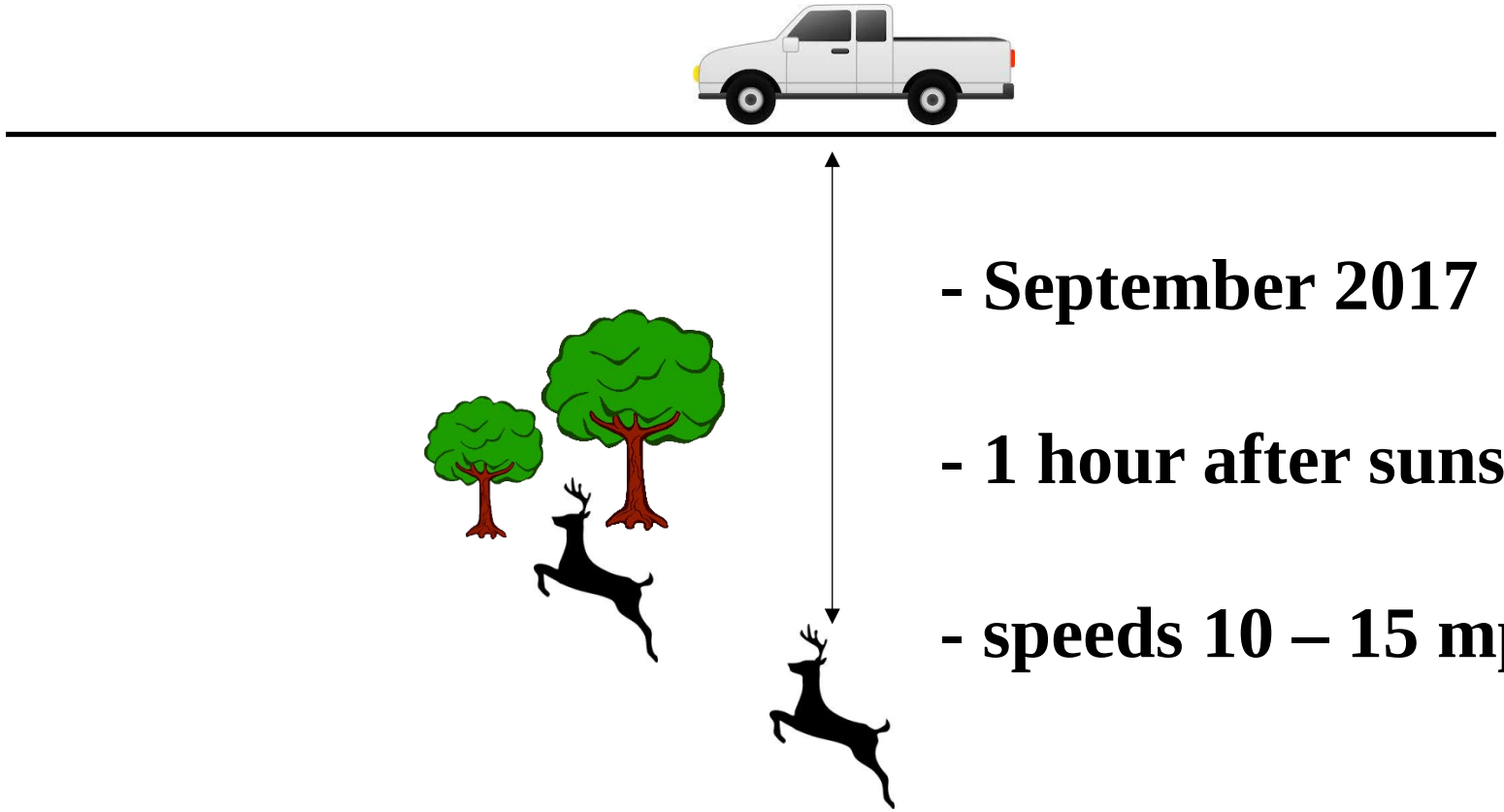

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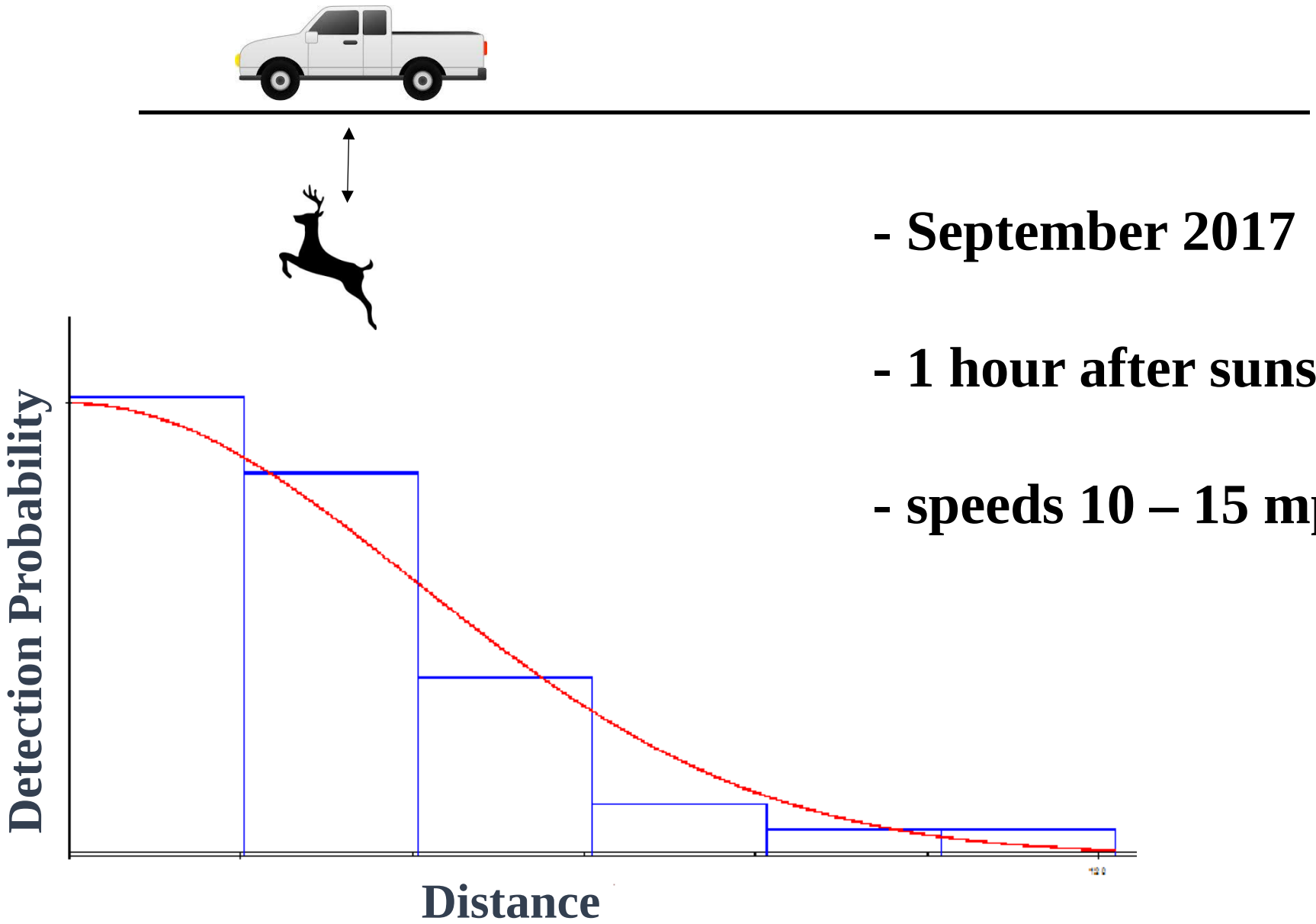


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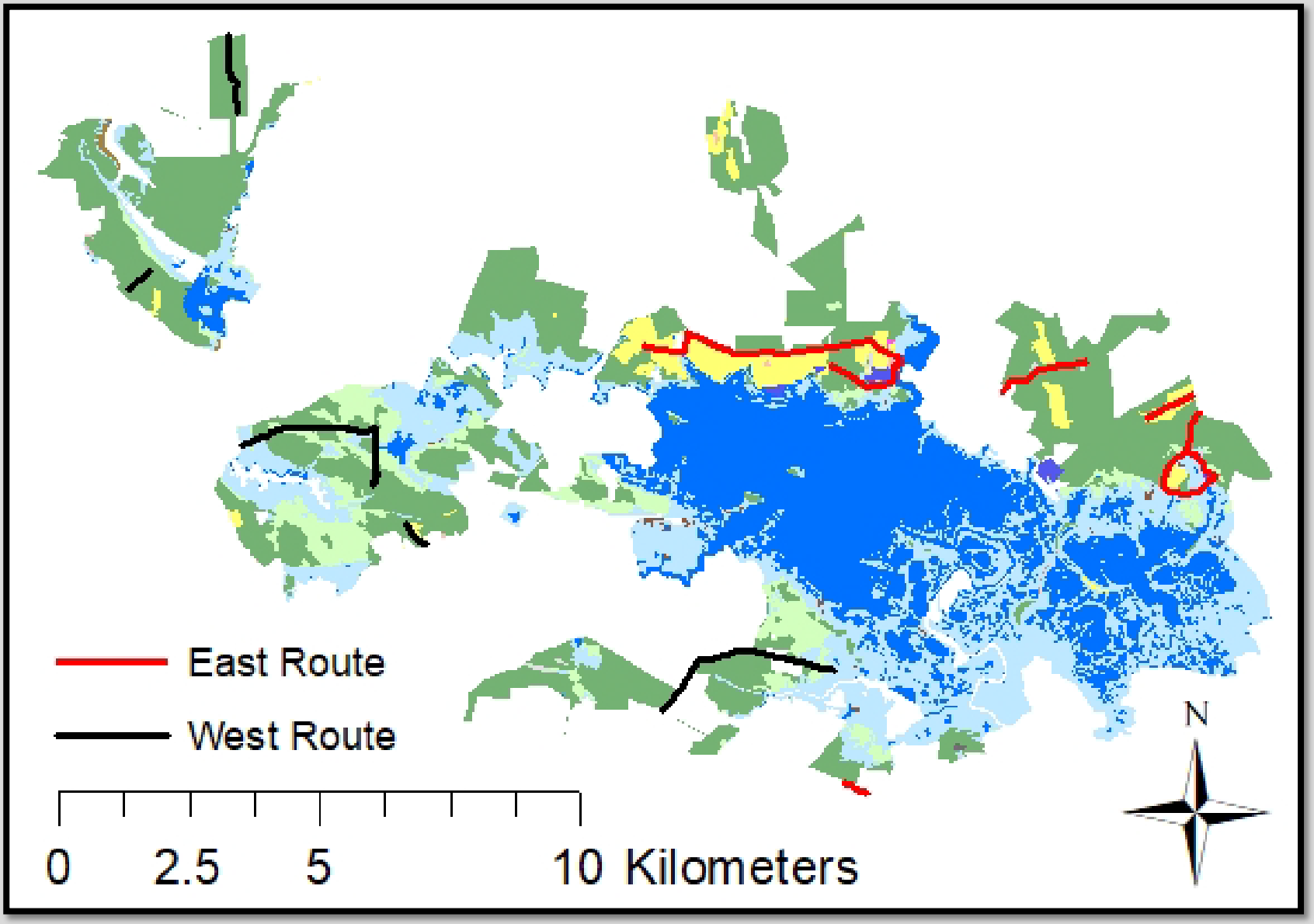
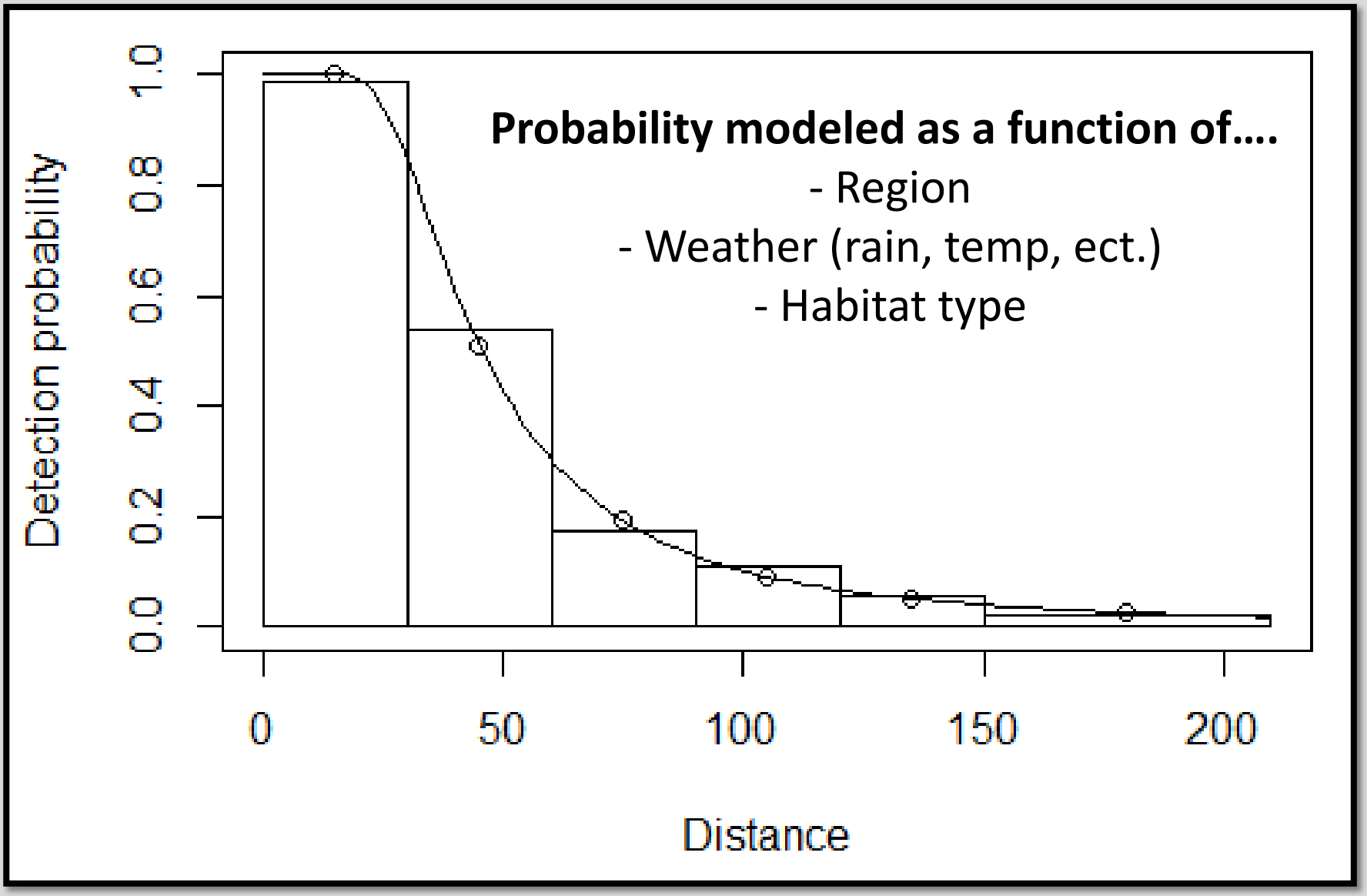

East Route
West Route
0
2.5
5
10 Kilometers
N

# Detection Function



# Total Deer Density

Sika + White-tailed deer

| Region | Estimate | Std. Error | CV | Lower 95% CI | Upper 95% CI | DF |
|---|---|---|---|---|---|---|
| East | 28.41 | 3.20 | 11% | 21.59 | 37.37 | 6.04 |
| West | 25.52 | 2.01 | 7% | 21.62 | 30.12 | 17.56 |
| Total | 26.91 | 2.06 | 8% | 22.91 | 31.61 | 17.93 |

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= 71 deer / mi$^2$

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- Do we see different densities in different habitat types?
- Statistically significant effect of habitat type on detection function

| Habitat | Estimate | Std. Error | CV | Lower 95% CI | Upper 95% CI | DF |
|---|---|---|---|---|---|---|
| Agriculture | 17.55 | 4.29 | 24% | 9.72 | 31.68 | 5.93 |
| Forest | 25.28 | 3.46 | 14% | 18.77 | 34.05 | 11.60 |

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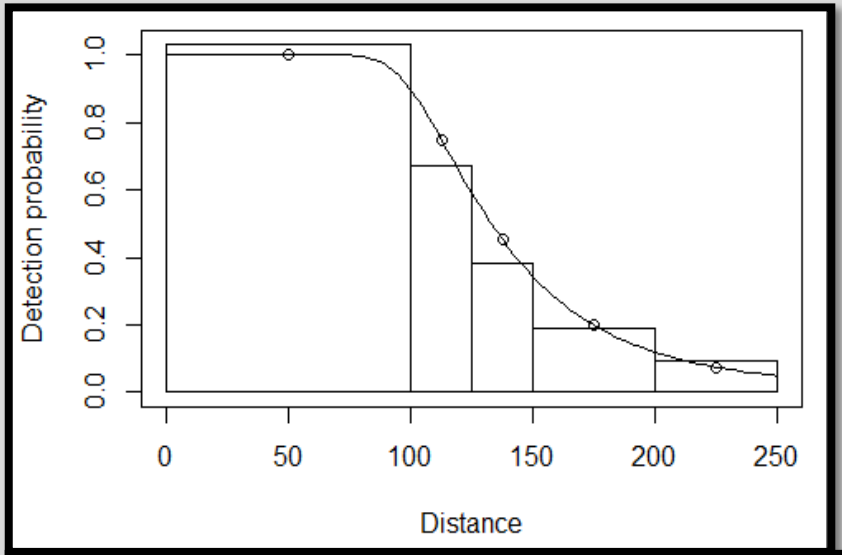
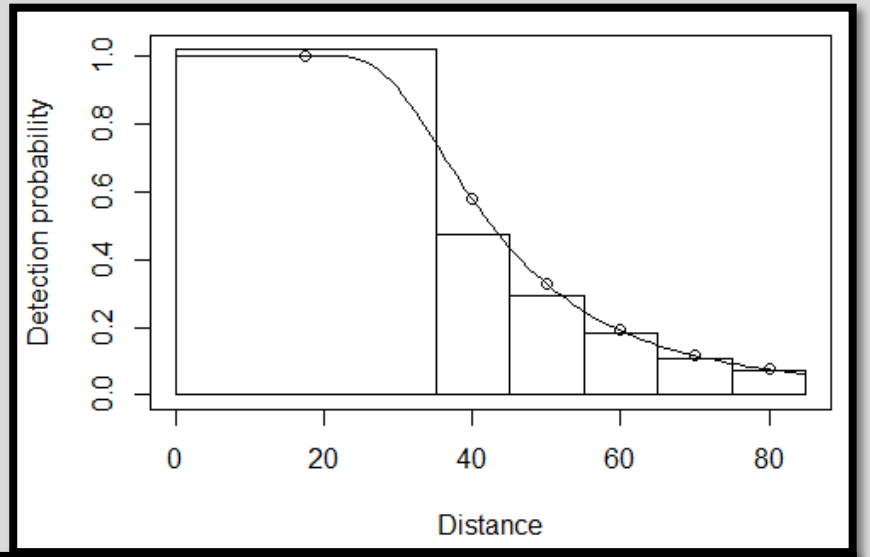


# Sika Deer Density

WTD and unknowns removed from data

| Region | Estimate | Std. Error | CV | Lower 95% CI | Upper 95% CI | DF |
|---|---|---|---|---|---|---|
| East | 19.08 | 2.49 | 13% | 13.86 | 26.28 | 5.89 |
| West | 22.01 | 2.01 | 9% | 18.01 | 26.90 | 11.14 |
| Total | 20.60 | 1.74 | 8% | 17.26 | 24.59 | 20.04 |

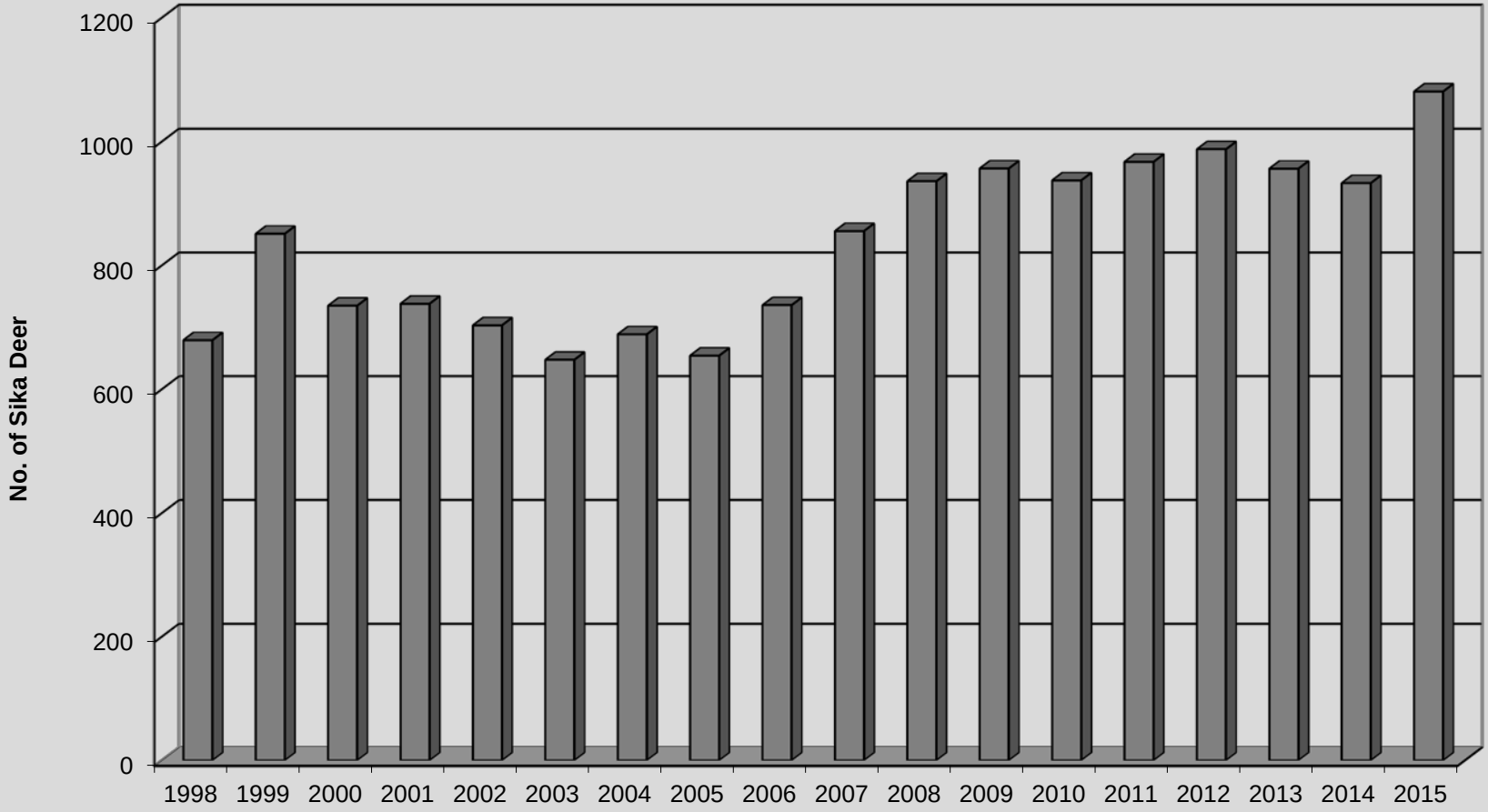
= 55 sika deer / $mi^2$

Hinds / Stag = 2.02

Calves / Hind = 0.57

# Blackwater NWR Sika Population Estimate

**-Downing Reconstruction Model (3 Year Running Average)**



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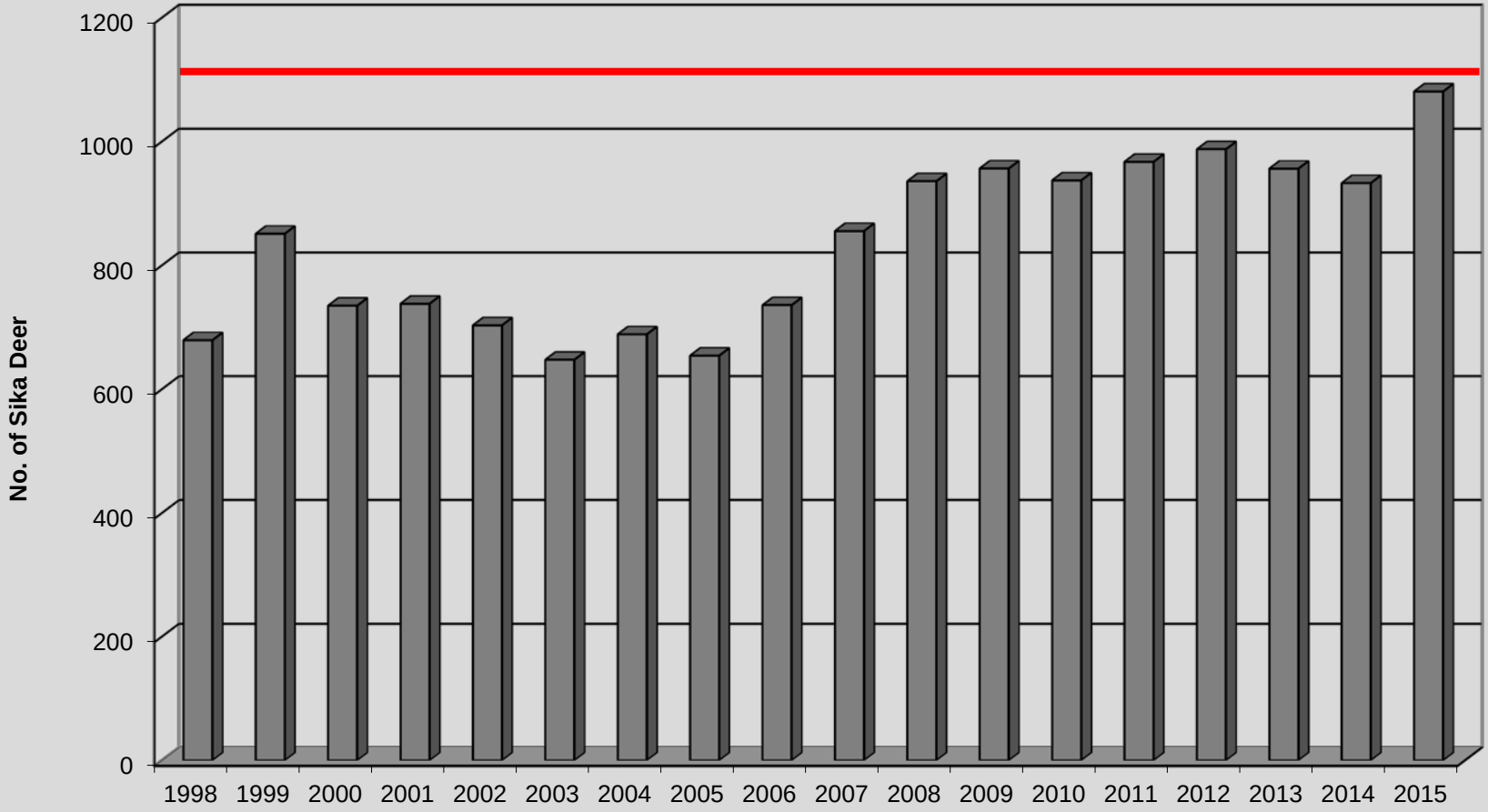

# Acknowledgements

Staff of Blackwater National Wildlife Refuge

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MBS
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Union Sportsmen's Alliance

Friends of Blackwater National Wildlife Refuge

# QUESTIONS?