

Big Game Committee

Meeting Agenda



**October 21, 2020
10:00 – 12:00 p.m.**

**Commission Room/Zoom Meeting
Centennial Campus, Raleigh**

Welcome/Open Meeting

- Roll Call
- Mandatory Bear Tooth Submission Update
- Update on S. Appalachian Bear Population Estimate
- Potential Eastern Bear Population Estimate
- Potential Deer Research Update

John Coley

Betsy Haywood
Brad Howard
Colleen Olfenbuttel
Colleen Olfenbuttel
Jon Shaw

Additional Topics

John Coley

Adjourn

Mountain BMU and Coastal BMU Population Studies



Colleen Olfenbuttel, CWB®
Black Bear and Furbearer Biologist

A close-up photograph of a bear's face, showing its eyes, nose, and fur. The bear is looking directly at the camera. The image is dark and has a grainy texture.

Today's Topics

- Monitoring Bear Populations
- Mountain BMU Population Study
 - Background
 - Results
- Proposed Coastal BMU Population Study

MONITORING BEAR POPULATIONS

“Use science-based decision making and biologically-sound management principles to manage black bear populations in balance with available habitats and human expectations to assure long-term existence and hunting opportunities.”

Objective #3: Monitor black bear populations and trends using existing survey techniques, while also investigating new methods for monitoring efforts.

NORTH CAROLINA BLACK BEAR

MANAGEMENT PLAN

2012-2022

North Carolina Wildlife Resources Commission



MONITORING BEAR POPULATIONS

Bear Cooperator Program:

- Benefits:
 - Age and sex structure of harvested population
 - Population growth trends (+, -, stable)
 - Very rough population estimate



Attention Bear Hunters!
Help us monitor our bear population by submitting the premolar tooth from your bear.

Why submit the premolar tooth?

- Your information allows NCWRC biologists to better monitor bear populations, make management decisions, and evaluate the impacts of bear hunting.
- By recording age and sex of harvested bears over a period of years, biologists can more accurately model bear populations.
- We will send you a complimentary "North Carolina Black Bear Cooperator" ball cap and an age report for your bear in **September**.

**** We need information on all bears, young and old, to accurately model the bear population. ****

How to submit your premolar tooth?

- If your party leader or a biologist did not collect the premolar tooth from your harvested bear, you can submit the tooth using the enclosed tooth envelope and placing the tooth envelope in the mail.
- If you lost the bear tooth envelope, call 919-707-0050 to have a new envelope sent to you.
- If you lost the bear tooth envelope, go to www.ncwildlife.org/bear and click on the "Bear Cooperator Tab" to download a data sheet. Then tape the tooth to the data sheet you that you downloaded.

Instructions for Collecting Bear Teeth
(An instructional video is available at www.ncwildlife.org/bear)



1st PREMOLAR (PULL THIS TOOTH!)

Premolar

If possible, please submit both first premolars from the upper or lower jaw (

1) The tooth we need is the very small tooth immediately behind the upper and lower canines and away from the... using the canine as a lever... **LINE, WE NEED THY**

er premolars are gone

nd sent to us.

impact taxidermy r

ologist or 800-f



Envelop Flap

NCWRC - BEAR TOOTH RETURN ENVELOPE

We encourage you to submit your tooth to us as soon as possible. If you need assistance, call 919-707-0050 to get a new envelope. We will send you a complimentary ball cap and an age report for your bear in September. A thank you note will be included in the envelope.

PROVIDE THE FOLLOWING INFORMATION FOR OUR DATA COLLECTION PROGRAM:

OWNER'S NAME AND ADDRESS (Please print clearly):
NAME: _____
ADDRESS: _____
CITY: _____ STATE: _____ ZIP: _____

TOOTH INFORMATION:
TOOTH TYPE: Upper Lower Both
TOOTH SIDE: Left Right Both
TOOTH CONDITION: Good Fair Poor

ACTUAL WEIGHT OF TOOTH (in grams): _____
APPROXIMATE WEIGHT OF TOOTH (in grams): _____

DATE OF COLLECTION: _____
COLLECTOR'S NAME: _____
COLLECTOR'S PHONE: _____
COLLECTOR'S ADDRESS: _____
COLLECTOR'S CITY: _____ STATE: _____ ZIP: _____

MONITORING BEAR POPULATIONS



Bear Cooperator Program:

- Benefits:

- Age and sex structure of harvested population
- Population growth trends (+, -, stable)
- Very rough population estimate

- Drawbacks:

- Biased by submitted sample
 - Addressed via mandatory tooth submission
- Cannot extrapolate beyond BMU level
 - Addressed via mandatory tooth submission
- Only in huntable areas
 - Trends/estimate may not represent population
- Reconstructs population
 - Always 3 years behind in estimate



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Why submit the premolar tooth?

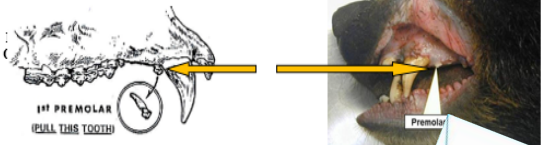
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Envelop Flap

NCWRC-BEAR TOOTH RETURN ENVELOPE

INSTRUCTIONS:

- 1. The tooth we need is the very small tooth immediately behind the upper and lower canines and away from the... using the canine as a lever... **ONLINE, WE NEED THY**... premolars are gone... and sent to us... impact taxidermy... **800-6**

PREMOLAR INFORMATION:

PREMOLAR NUMBER: _____ DATE: _____

SEX: Male Female Unknown

AGE: Juvenile Adult Unknown

WEIGHT: _____

HEIGHT: _____

HAIR COLOR: _____

SCAR: Yes No

MARKING: Yes No

REMARKS: _____

NAME: _____ PHONE: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

MONITORING BEAR POPULATIONS

How do we address biases of harvest, non-huntable areas, and lag of population estimate?

Capture-Recapture Studies



MONITORING BEAR POPULATIONS

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Capture-
Recapture
Studies

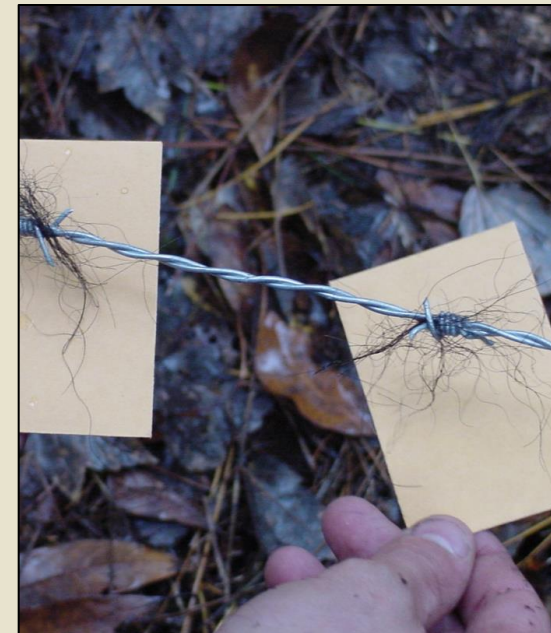


Genetics!



MONITORING BEAR POPULATIONS CAPTURE-RECAPTURE STUDIES USING GENETICS

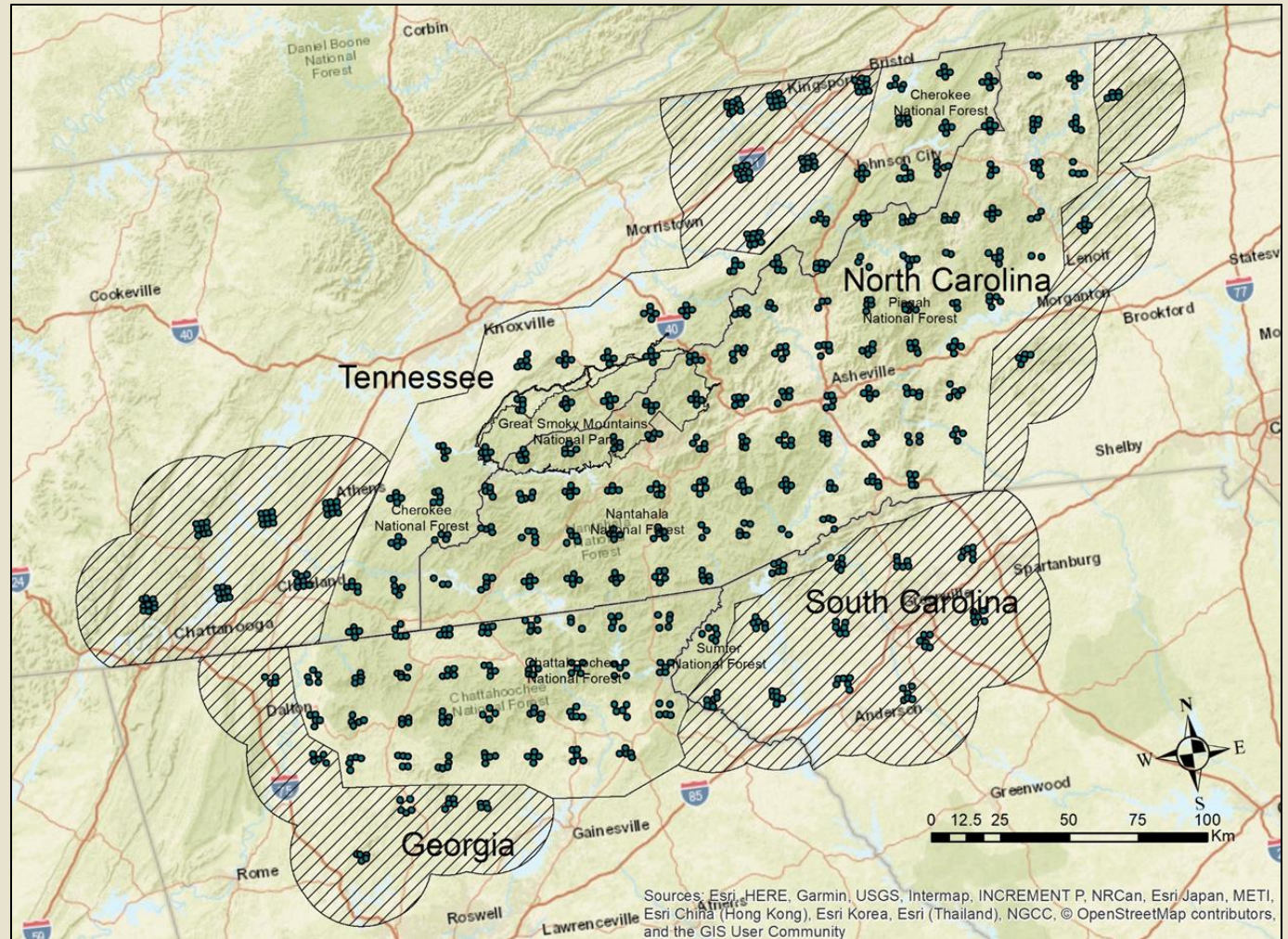
- Florida
- Louisiana
- Georgia
- South Carolina
- Kentucky (on-going)
- Missouri (on-going)
- Arkansas (on-going)
- Tennessee (on-going)
- Virginia (proposed)



MOUNTAIN BMU STUDY

Objective:

- Estimate population size and density of bears in MBMU
 - GA, TN, SC, NC
 - 16.5 million acres
- Benefits:
 - Credible method for estimating bear population
 - Less biased than current methods



MOUNTAIN BMU STUDY

Fieldwork:

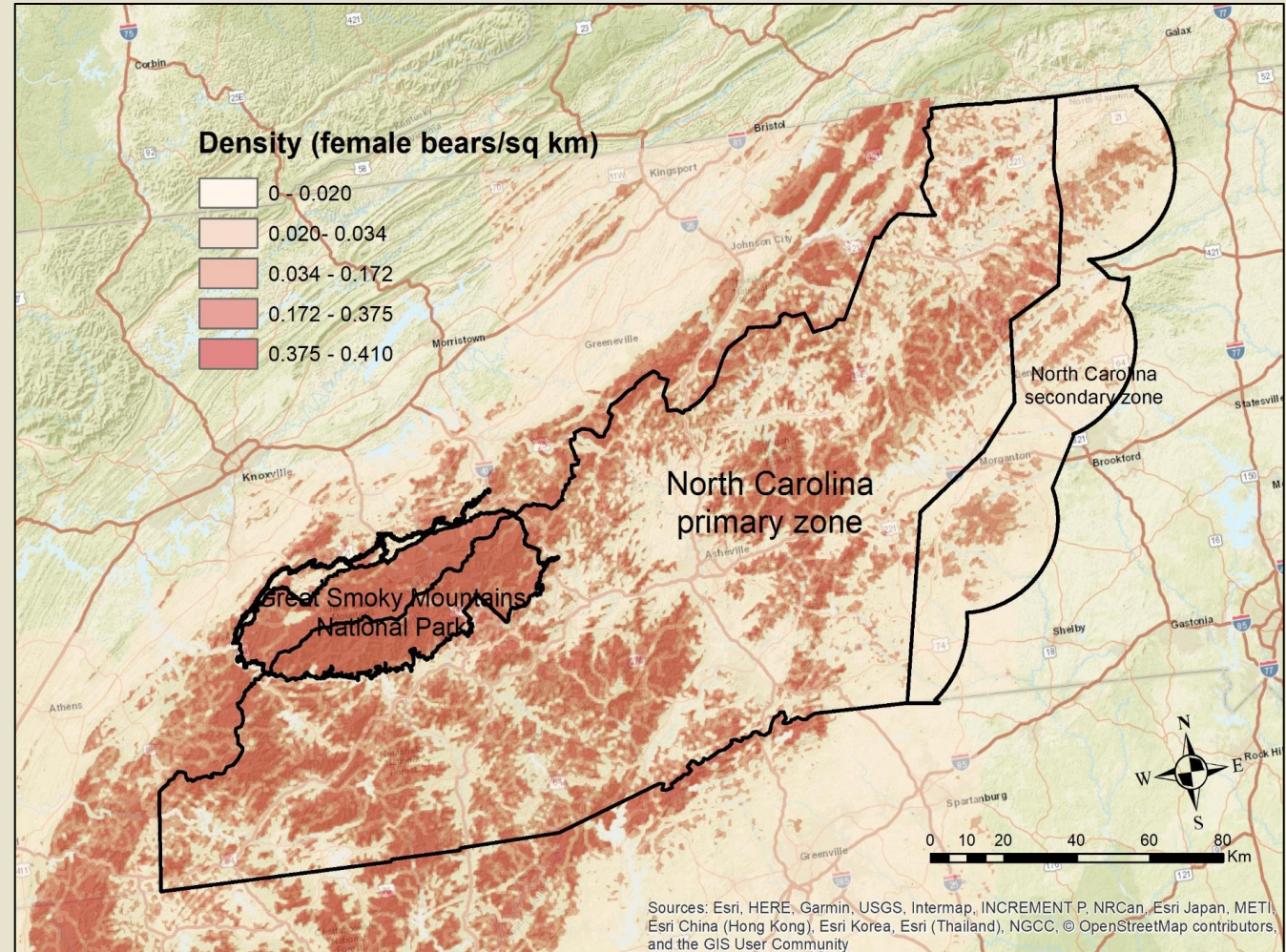
- 2017: GA, TN, SC
- 2018: NC, TN (2nd zone)
 - 364 barb wire sampling sites
 - Public and private lands
 - Weekly checked and rebaited
 - Barb sterilized
- Females only



MOUNTAIN BMU STUDY RESULTS

Female Density (2018)

- NC Primary – 0.141 bears/km²
- NC Secondary – 0.026 bears/km²
- MBMU – 0.121 bears/km²



MOUNTAIN BMU STUDY RESULTS

MBMU Study

Female Abundance (2018)

- North Carolina – 2,983.4
- Great Smoky Mountains NP – 733.9

Total abundance (includes males and cubs; 2018)

- North Carolina – 7,318
- Great Smoky Mountains NP – 1,909

Population Reconstruction

Female Abundance (2015)

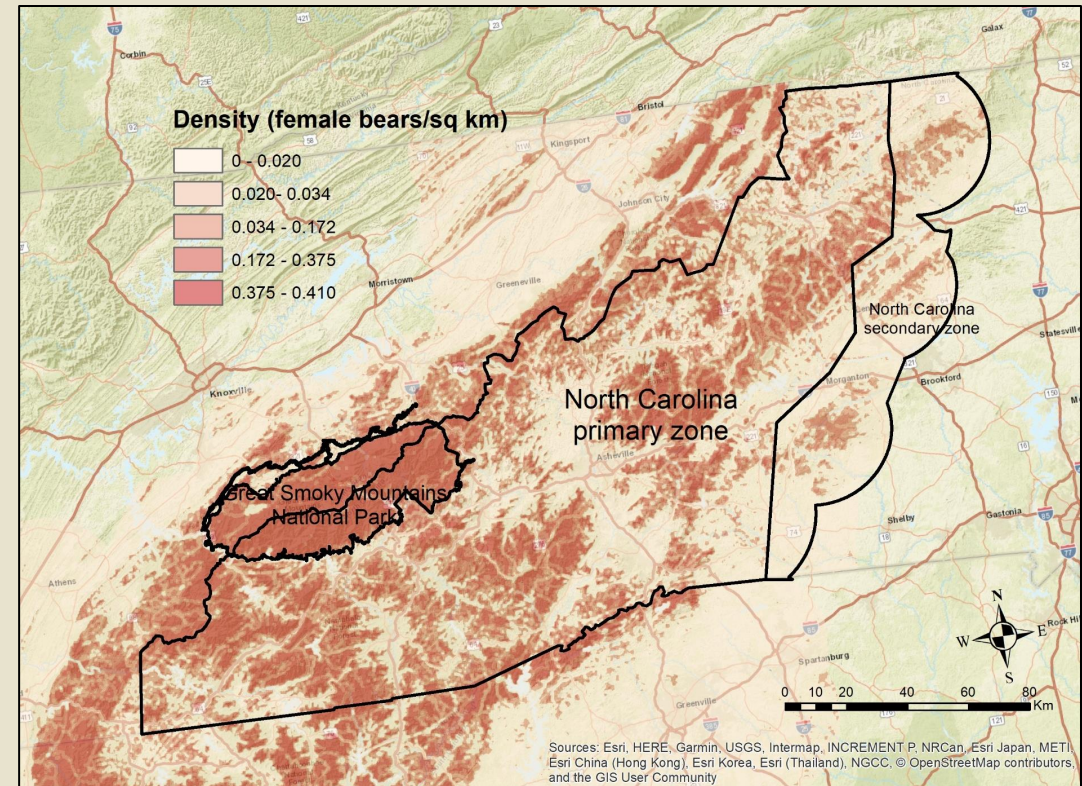
- North Carolina ~ 1,700 to 1,900
- Great Smoky Mountains NP – no info.

Total abundance (includes males and cubs; 2015)

- North Carolina ~ 4,173 to 4,650
- Great Smoky Mountains NP – no info.

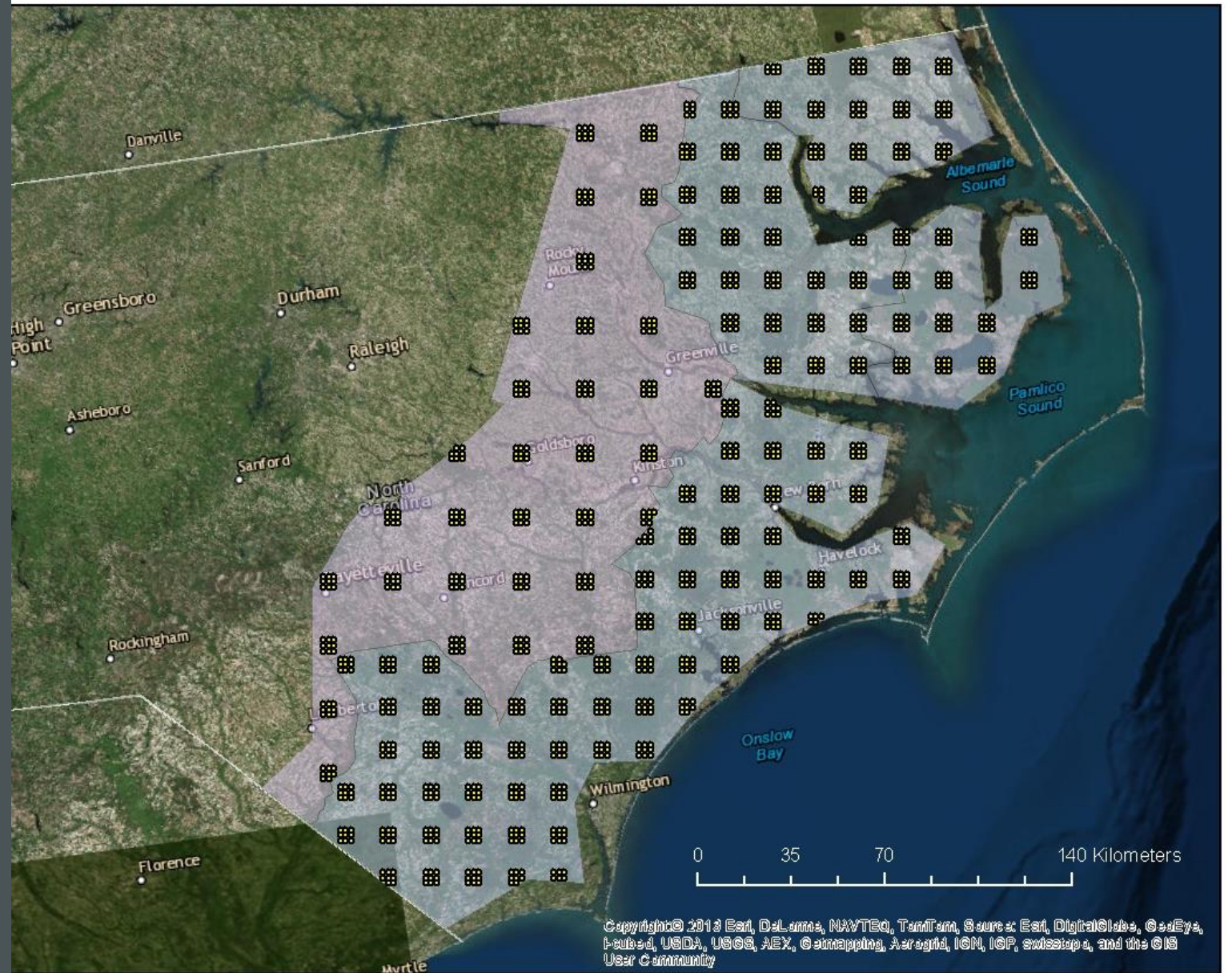
MOUNTAIN BMU STUDY NEXT STEPS

- Work w/Dr. Clark to create finer-scale bear density maps
- Meet with WMD & LAWA staff to discuss results and role of certain designated bear sanctuaries.
- Consider if zones are needed in MBMU
- Marker database:
 - Aid in animal attack forensics



COASTAL BMU STUDY OBJECTIVES

1. Estimate black bear density & population size for the CBMU and by CBMU zone.
2. Evaluate and calibrate population reconstruction.
3. Recommend future monitoring plans.



COASTAL BMU STUDY FIELDWORK

- Same methods as MBMU for comparison
 - Hair traps checked weekly for 6 weeks
- Fieldwork over 2 summers:
 - Northern half of CBMU ~667 hair traps
 - Southern half of CBMU ~665 hair traps

MONITORING BEAR POPULATIONS

1. Est. bear population in huntable & non-huntable areas.
 - Bear Cooperator Program (long-term option)
 - Mountain BMU Population study
 - Proposed Coastal BMU Population study

MONITORING BEAR POPULATIONS

1. Est. bear population in huntable & non-huntable areas.
 - *Mandatory Bear Cooperator Program corrected with MBMU & CBMU studies
2. Assess population trends & current surveys; implement new surveys
 - *Mandatory Bear Cooperator Program corrected with MBMU & CBMU studies

MONITORING BEAR POPULATIONS

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2. Assess population trends & current surveys and implement new surveys
 - *Mandatory Bear Cooperator Program corrected with MBMU & CBMU studies
3. Monitor sex & age structure of the population; determine if sampled harvest represents sex and age structure of actual harvest
 - Mandatory* Bear Cooperator Program

Questions?



North Carolina Deer Research



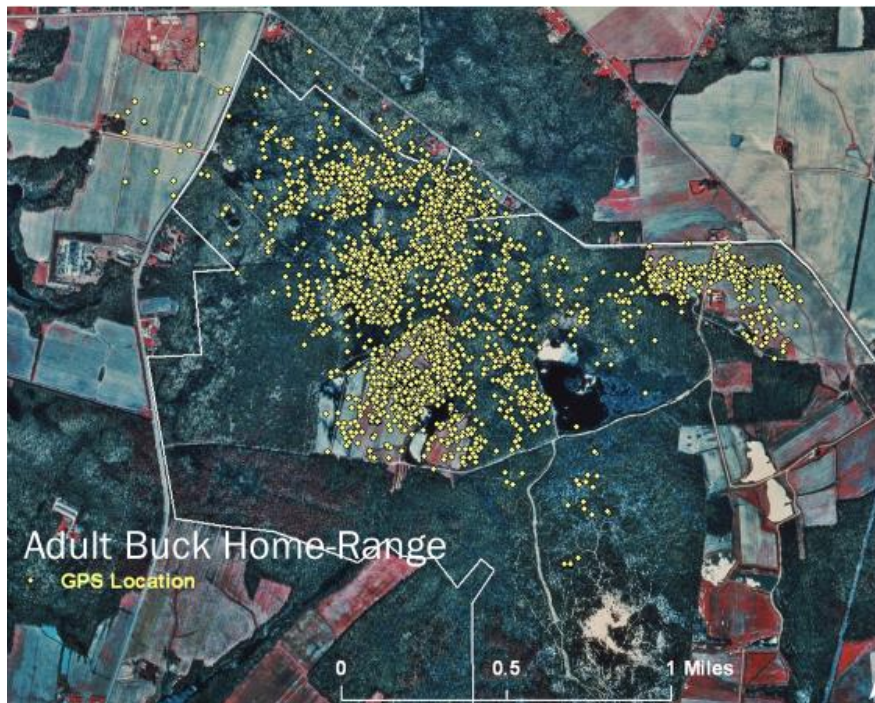
*Filling the knowledge gap to
improve management*

*Jonathan Shaw, PhD
NCWRC Deer Biologist*

Knowledge Gap

Southeast Deer Study Group

- 74 abstracts with GPS collars
- 1 study in urban/suburban area (Bloomington, IN)



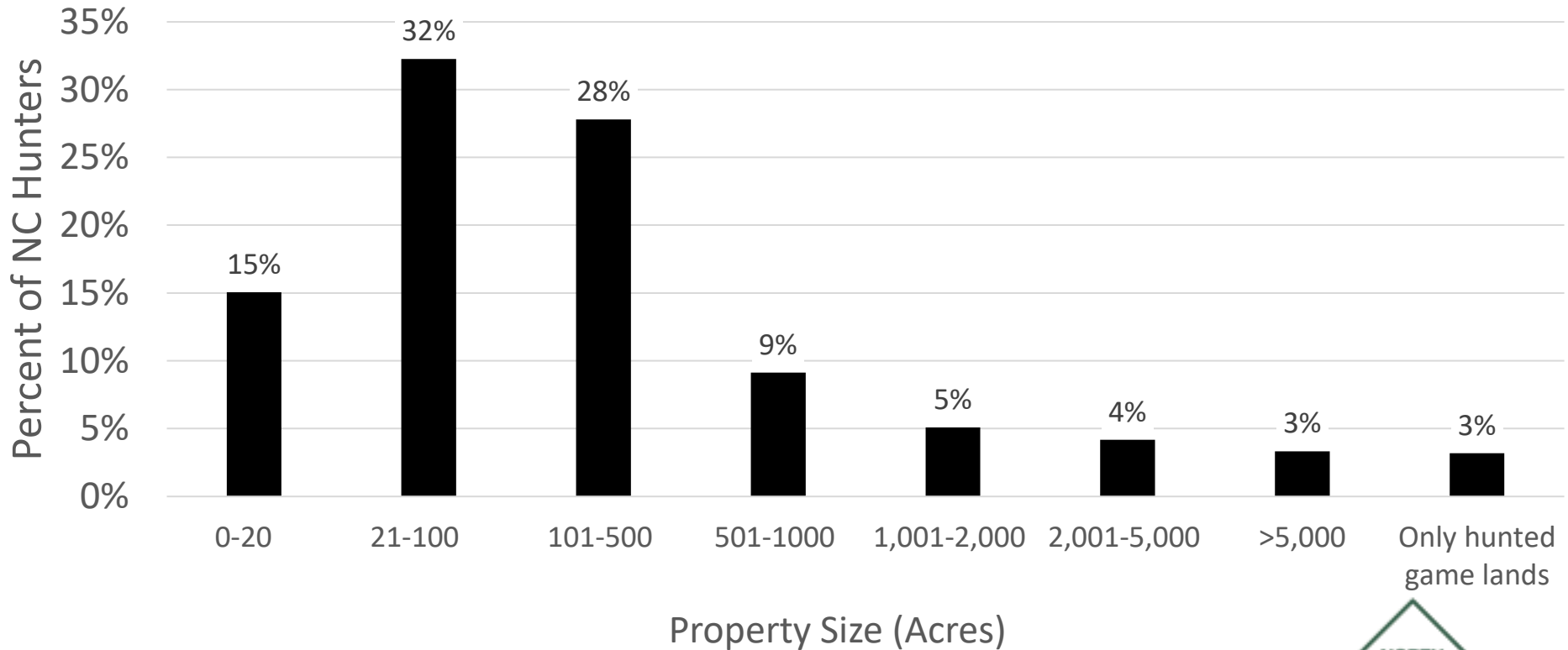
Urban/Suburban Deer Management

There's more to it than nuisance & damage issues...



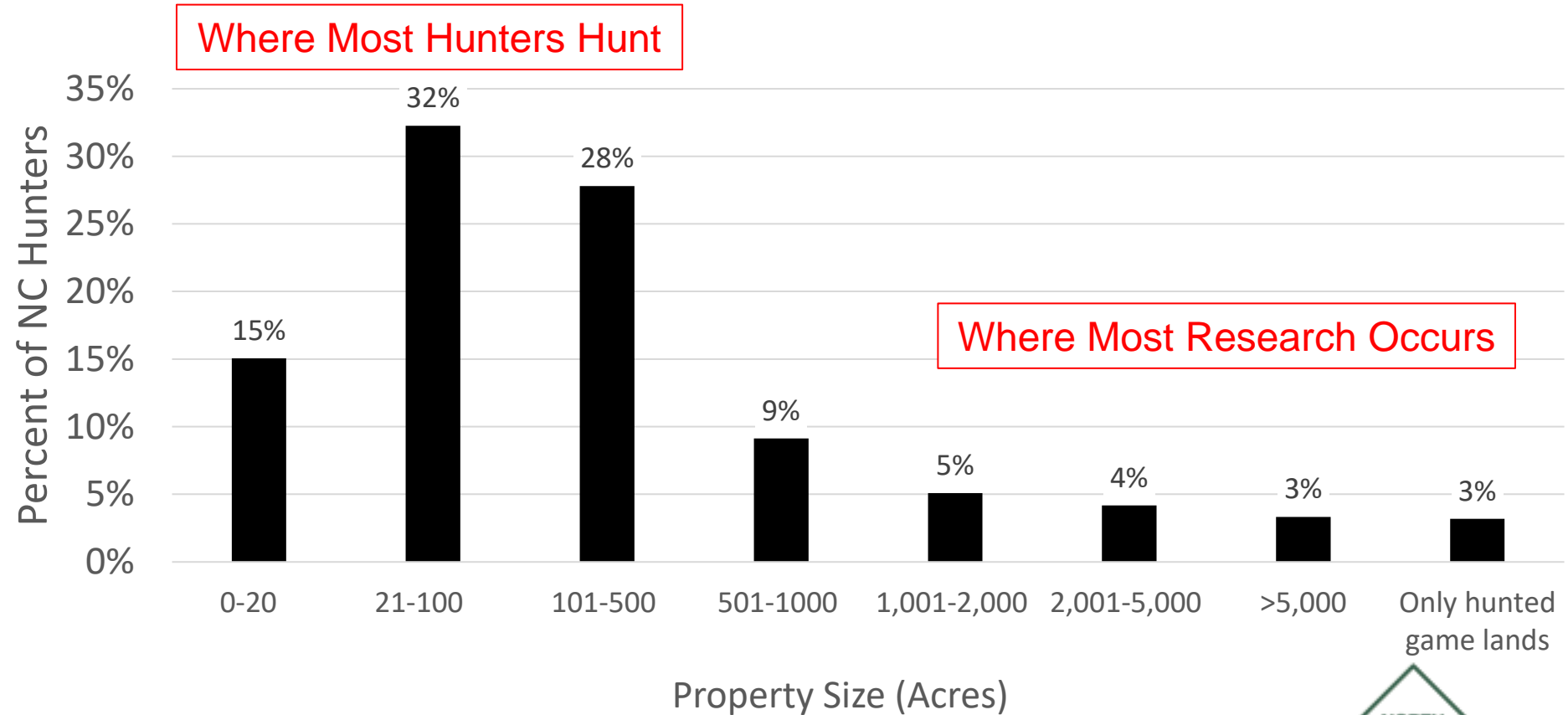
NC Deer Hunter Survey - 2016

What is the largest private property you deer hunt?

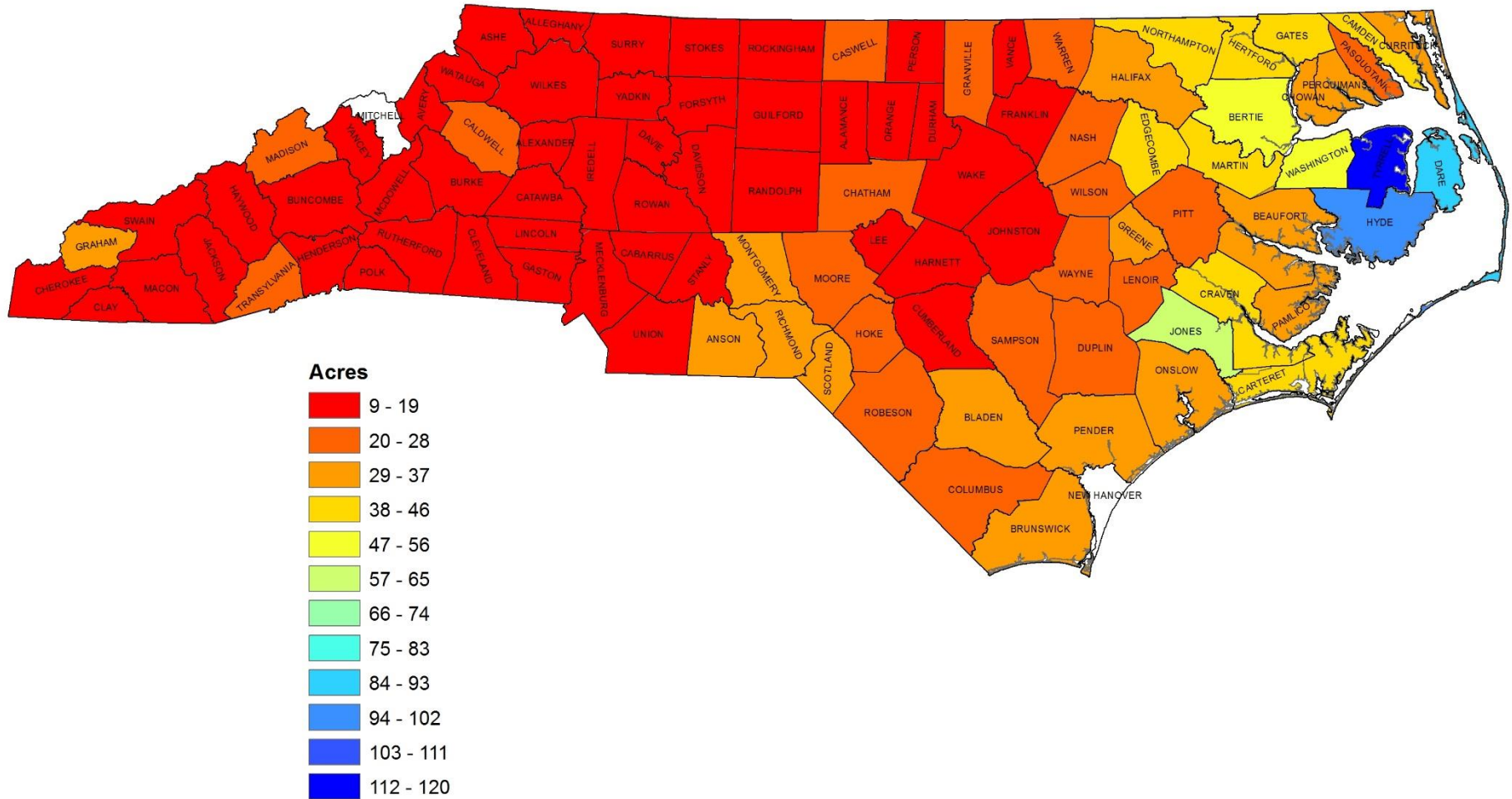


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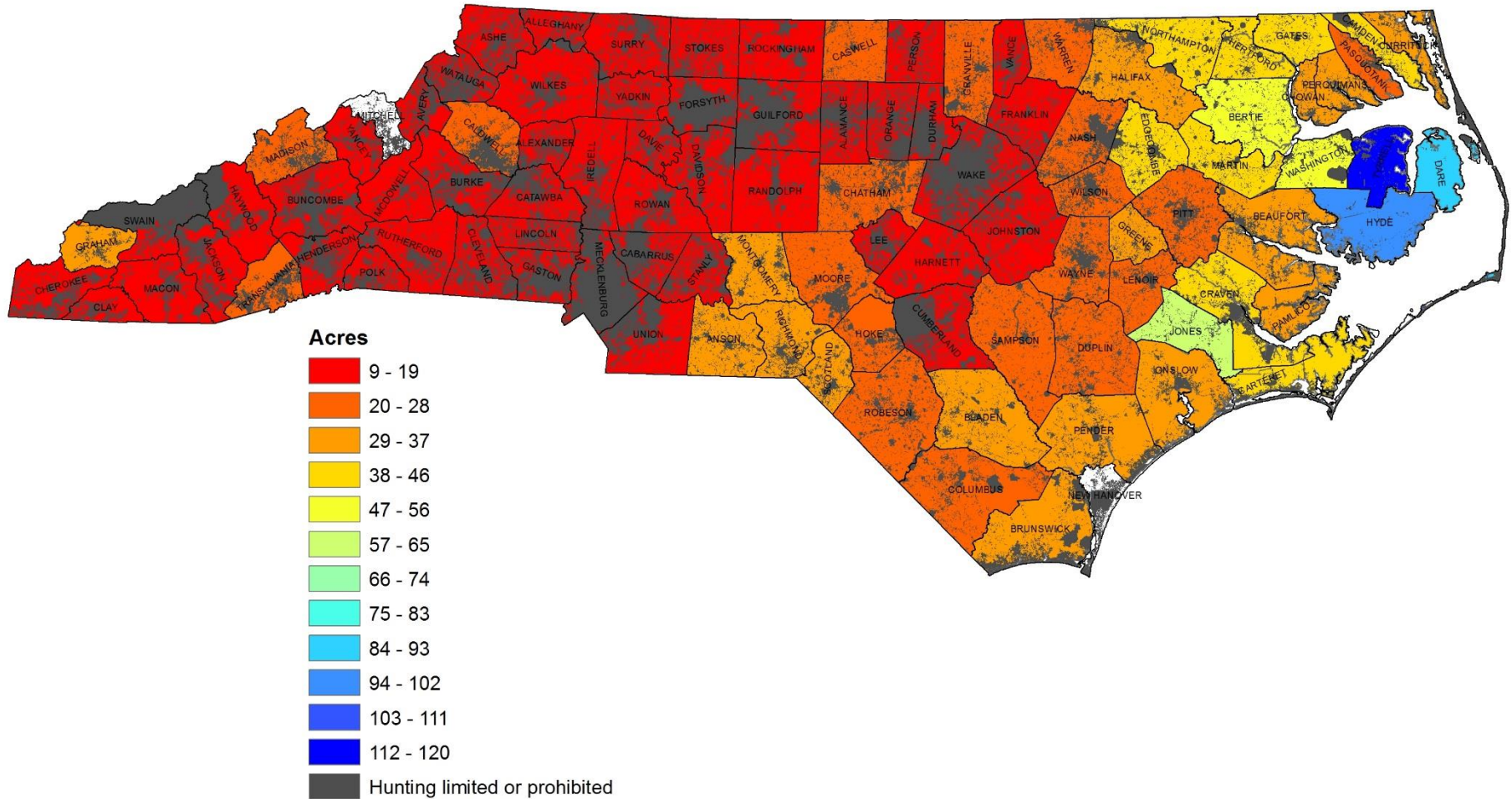
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Average Parcel Size



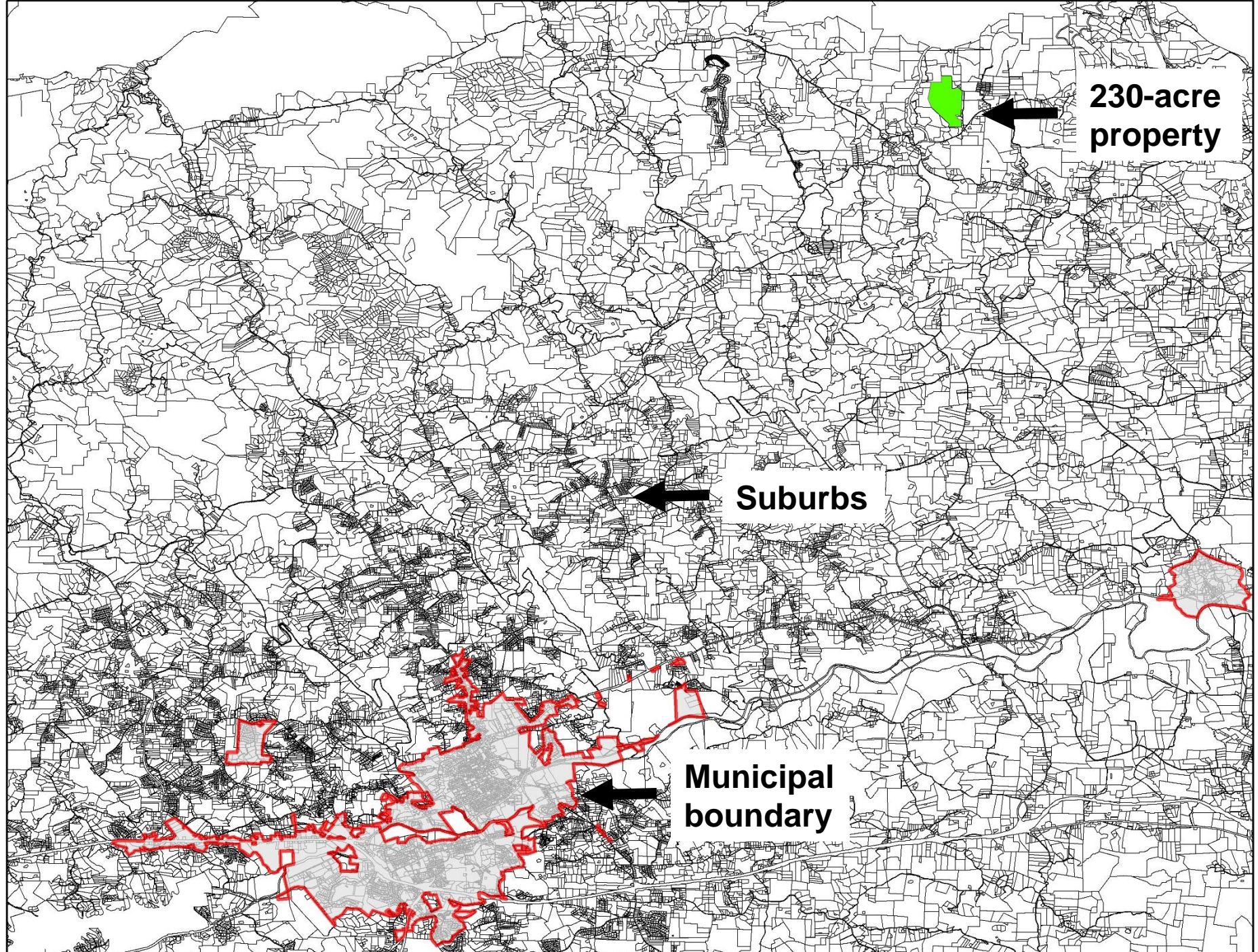
Average Parcel Size



NC Hunttable Lands Project (Burke 2017)

Survey of Landowners

Property Size (acres)	Non-Industrial Properties (% hunted)	Industrial Properties (% hunted)
< 1	10%	3%
1-5	19%	9%
5-10	38%	13%
10-20	51%	15%
20-200	70%	34%
> 200	88%	55%



**230-acre
property**

Suburbs

**Municipal
boundary**

Deer Ecology Across a Rural-Urban Continuum

Objectives across continuum:

1. Determine movements, density, recruitment, survival, and causes of mortality.
2. Estimate harvest probability from deer movements and hunter distribution.
3. Assess cultural issues related to deer and deer hunting.



Study Site

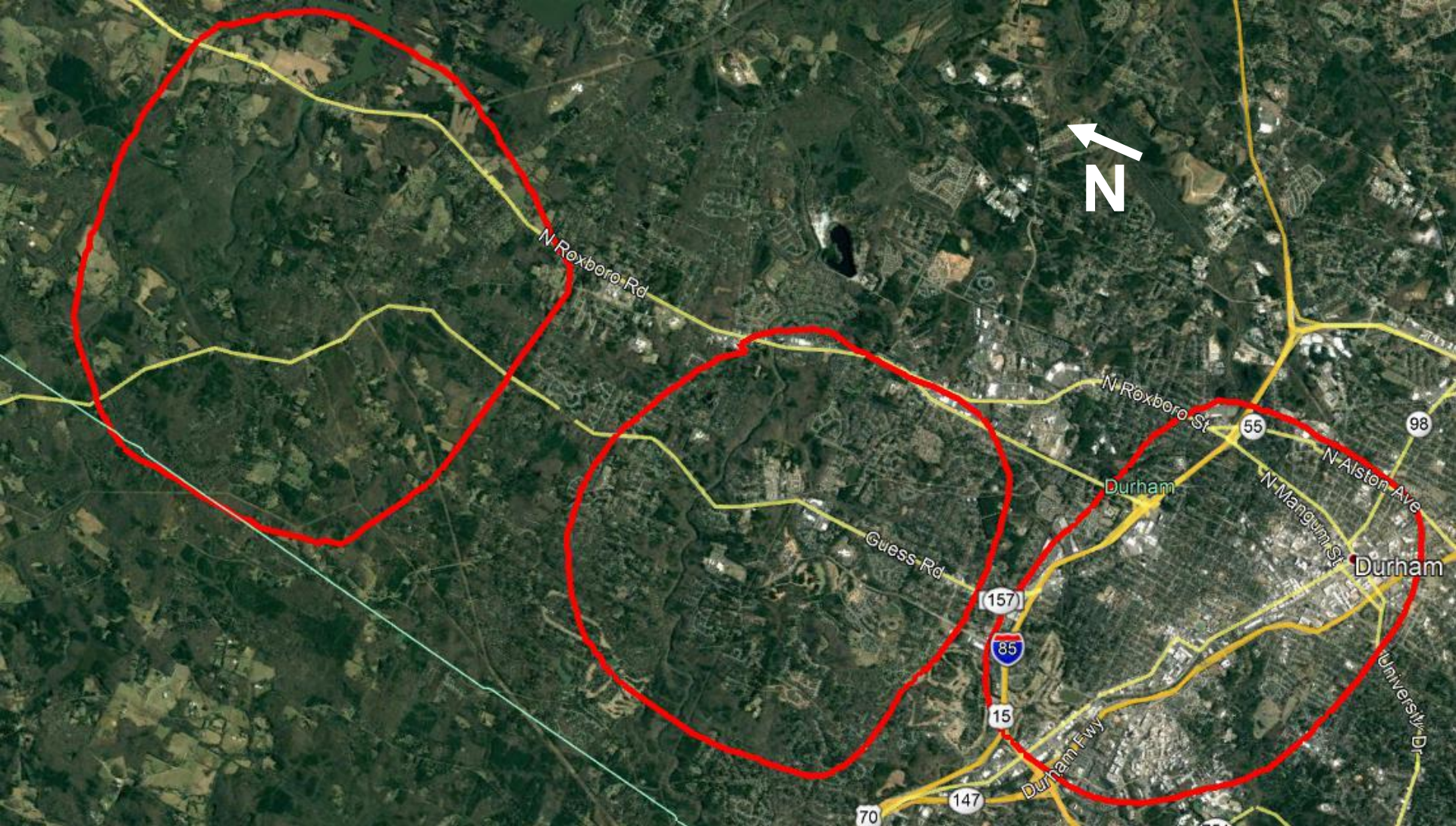
City with lawful hunting that demonstrates a rural/suburban/urban continuum

Potential Sites

- Concord - UAS
- Durham
- Chapel Hill - UAS
- Burlington



Example of Rural/Suburban/Urban Continuum North Durham



Management Implications

- Interpret survey & harvest trends.
- Understand how rules impact herd.
- Evaluate current programs.
- Provide sound technical guidance.
- Improve huntable lands model.
- Applicable across NC and US.



Questions

