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
Today’s Topics

• Monitoring Bear Populations
• Mountain BMU Population Study
  o Background
  o 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.
Bear Cooperator Program:

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

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

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

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)
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
Fieldwork:
• 2017: GA, TN, SC
• 2018: NC, TN (2\textsuperscript{nd} zone)
  o 364 barb wire sampling sites
  o Public and private lands
  o Weekly checked and rebaited
  o Barb sterilized
• Females only
Female Density (2018)
- NC Primary – 0.141 bears/km$^2$
- NC Secondary – 0.026 bears/km$^2$
- MBMU – 0.121 bears/km$^2$
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.
• 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:
  o Aid in animal attack forensics
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.
• 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
1. Est. bear population in huntable & non-huntable areas.
   • Bear Cooperator Program (long-term option)
   • Mountain BMU Population study
   • Proposed Coastal BMU Population study
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
1. Est. bear population in huntable & non-huntable areas.
   • *Mandatory Bear Cooperator Program corrected with MBMU & CBMU studies

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?

<table>
<thead>
<tr>
<th>Property Size (Acres)</th>
<th>Percent of NC Hunters</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20</td>
<td>15%</td>
</tr>
<tr>
<td>21-100</td>
<td>32%</td>
</tr>
<tr>
<td>101-500</td>
<td>28%</td>
</tr>
<tr>
<td>501-1000</td>
<td>9%</td>
</tr>
<tr>
<td>1,001-2,000</td>
<td>5%</td>
</tr>
<tr>
<td>2,001-5,000</td>
<td>4%</td>
</tr>
<tr>
<td>&gt;5,000</td>
<td>3%</td>
</tr>
<tr>
<td>Only hunted game lands</td>
<td>3%</td>
</tr>
</tbody>
</table>
NC Deer Hunter Survey - 2016
What is the largest private property you deer hunt?

Where Most Hunters Hunt

Where Most Research Occurs

Percent of NC Hunters

Property Size (Acres)

- 0-20: 15%
- 21-100: 32%
- 101-500: 28%
- 501-1000: 9%
- 1,001-2,000: 5%
- 2,001-5,000: 4%
- >5,000: 3%
- Only hunted game lands: 3%
Average Parcel Size

Accres
- 9 - 19
- 20 - 28
- 29 - 37
- 38 - 46
- 47 - 56
- 57 - 65
- 66 - 74
- 75 - 83
- 84 - 93
- 94 - 102
- 103 - 111
- 112 - 120
NC Huntable Lands Project (Burke 2017)
Survey of Landowners

<table>
<thead>
<tr>
<th>Property Size (acres)</th>
<th>Non-Industrial Properties (% hunted)</th>
<th>Industrial Properties (% hunted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>1-5</td>
<td>19%</td>
<td>9%</td>
</tr>
<tr>
<td>5-10</td>
<td>38%</td>
<td>13%</td>
</tr>
<tr>
<td>10-20</td>
<td>51%</td>
<td>15%</td>
</tr>
<tr>
<td>20-200</td>
<td>70%</td>
<td>34%</td>
</tr>
<tr>
<td>&gt; 200</td>
<td>88%</td>
<td>55%</td>
</tr>
</tbody>
</table>
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.