Hemorrhagic Disease Outbreak 2012

• Basic Information about hemorrhagic disease

• Specifics of this year’s outbreak

• Conclusions and recommendations
Hemorrhagic Disease (HD)

- Viral Disease
- Frequency and severity of outbreaks vary regionally and annually
- Outbreaks generally occur from July - October
- Not a result of the herd being “overpopulated”
Types of Hemorrhagic Disease

Epizootic Hemorrhagic Disease (EHD)
- EHD – 1
- EHD - 2

Blue Tongue Virus (BTV)
- BTV – 2
- BTV – 10
- BTV – 11
- BTV – 13
- BTV - 17
Transmission Vector

- Biting flies in the genus *Culicoides*
  - Biting midges
  - Sand gnats
  - Sand flies
  - No-see-ums
Susceptible Animals

• Wildlife
  – White-tailed deer, mule deer, bighorn sheep, elk, pronghorn antelope

• Livestock
  – Cattle - rarely show clinical signs
  – Sheep – more affected by BTV than EHD
Forms of Hemorrhagic Disease

- Three categories based on clinical signs and development of the disease
  - Peracute – very rapid
  - Acute – rapid
  - Chronic – long term
Peracute and Acute HD

- Swelling in head, neck, tongue, eyelids, lungs
- Hemorrhages and lesions in heart, mouth, stomach
- Fever, inactivity, lameness, difficulty breathing
Chronic Hemorrhagic Disease

- Lameness
- Sloughing off hoof walls
- Stomach ulcers
- Weigh loss and emaciation
Nationwide Distribution of HD

- Less Frequent
  - Lower immunity
  - Higher Mortality

- More Frequent
  - Higher immunity
  - Lower Mortality
Principal Factors of an Outbreak

1. Deer herd’s level of immunity from previous exposure

2. Virulence of the particular strain of virus

3. Abundance of *Culicoides* insects
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Areas Surveyed for Hemorrhagic Disease
Estimating Mortality

- 13 areas searched
- 18 miles of creeks
- 4,133 acres
- 91 Man-hours
- Found 80 dead deer
Survey Results

- Total of 80 HD deer found

- Averages:
  - 0.9 deer / hour of searching
  - 4.5 deer / stream mile
  - 12.4 deer / sq mile
Impact of Mortality

• Surveys
  – 4.5 deer/stream mile
  – 12.4 deer/square mile

• Average annual hunting mortality
  – Wilkes: 9.7 deer/square mile
  – Surry: 6.8 deer/square mile

• Est. Population Density
  – Wilkes: 45 deer/square mile
  – Surry: 30 deer/square mile

• Direct comparison of these number is like comparing apples to oranges
Early Archery Season Deer Harvest

- Deer Harvest by Telephone and Internet during first 7 days of archery season
Deer harvest reported by phone/internet during first 7 days of archery season

<table>
<thead>
<tr>
<th>County</th>
<th>3-Year Average</th>
<th>2012</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilkes</td>
<td>81</td>
<td>35</td>
<td>-57%</td>
</tr>
<tr>
<td>Surry</td>
<td>42</td>
<td>23</td>
<td>-45%</td>
</tr>
<tr>
<td>District 7</td>
<td>483</td>
<td>375</td>
<td>-22%</td>
</tr>
</tbody>
</table>
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Conclusions and Recommendations

• Impacts of the disease outbreak are greatest on the east slope blue ridge escarpment and foothills
Conclusions and Recommendations

- Exact mortality percentage unknown, but likely similar to other outbreaks where mortality rate is 30-50% or greater

- While this is a large impact, the deer herd is expected to rebound
Conclusions and Recommendations

• In some areas, the disease mortality is likely 1-2 times more than mortality expected from the entire hunting season

• We expect this to largely be compensated by:
  – Less desire for hunters to harvest deer
  – Less opportunity for hunters to harvest deer
Conclusions and Recommendations

• Complete understanding of impact of disease will require:
  – Evaluate hunter harvests
  – Evaluate sex/age ratios of herd
  – Continue to document reports of mortality

• Adjustments to deer hunting regulations may be appropriate in future years
Conclusions and Recommendations

- Individual property owners and hunt clubs
  - Be aware that significant mortality has occurred and adjust doe harvest accordingly
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For more information
http://www.ncwildlife.org/Hunting