Evaluating the Impacts of Hunting Paths on Northern Bobwhite Demographics and Hunt Success

Seth Wood, Theron M. Terhune II, and James A. Martin
Introduction

Why grid block?

- Reduction of hardwoods (thick brush or overgrown thickets)
- Alter and manage plant succession
- Increase access for hunting dogs
- Increase access for hunters

Implications of Grid Blocking

- Directly reduces cover in correlation with season/weather (e.g., frost, raptor migration)
- Increases the amount of edge
- Potential impacts on hunt success
- Potential impacts on survival

Aerial Image of grid blocking (approx. 30’x30’) on SH Plantation

Amount of Edge

Mortality
Methods
Average Sum of Edge: 15067 meters

Average Sum of Edge: 9164 meters

<table>
<thead>
<tr>
<th>Block Size (Acre)</th>
<th>Linear Edge (m)</th>
<th>Cost / Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>0.10</td>
<td>9,164</td>
</tr>
<tr>
<td>Dense</td>
<td>0.03</td>
<td>15,067</td>
</tr>
<tr>
<td>Control</td>
<td>70.0</td>
<td>N/A</td>
</tr>
</tbody>
</table>
RESULTS – DOG AND COURSE COVERAGE

Average Dog Speed (mph)

- Control: 6.0 mph
- Dense: 10.0 mph
- Moderate: 4.0 mph

Average Hunter Distance per Hunt (mi)

- Control: 3.0 miles
- Dense: 3.0 miles
- Moderate: 3.0 miles

Course Coverage and Area Overlap

- Number of Dogs:
  - 2: Course Coverage 33.00%, Area Overlap 29.99%
  - 3: Course Coverage 39.98%, Area Overlap 40.83%
  - Total: Course Coverage 36.37%, Area Overlap 35.23%
RESULTS – HUNT QUALITY

The graph shows the rate (hr⁻¹) of various metrics across different treatment levels: Control, Dense, and Moderate.

- **Control**
  - Birds Harvested
  - Coveys Encountered
  - Coveys Pointed

- **Dense**
  - Birds Harvested
  - Coveys Encountered
  - Coveys Pointed

- **Moderate**
  - Birds Harvested
  - Coveys Encountered
  - Coveys Pointed

The metrics are represented by different colors:
- Blue: Birds Harvested
- Red: Coveys Encountered
- Green: Coveys Pointed

The error bars indicate the variability within each treatment group.
RESULTS

HUNT QUALITY

Rate (hr⁻¹)

Control | Moderate | Dense

Coveys Found | Wild Flushes

[Graph showing rate differences between control, moderate, and dense conditions with respective Coveys Found and Wild Flushes categories.]
Known Fates Sequential Analysis Results

- $S (\text{Sex} \times \text{Age} + T + TT + \text{Treatment} + \text{Hunting w/1 week lag})$
- $S (\text{Sex} \times \text{Age} + T + TT)$
- $S (\text{Sex} \times \text{Age})$

**Winter**

**Breeding Season**

- Intercept
  - Dense
  - Moderate

- Hunting
  - Dense
  - Moderate
RESULTS – WINTER SURVIVAL
RESULTS – POPULATION RESPONSE

Birds Per Acre

- **Moderate**: 1.3
- **Dense**: 1.4
- **Control**: 1.3

Treatment
Summary

Negative impact of hunting on survival

Hunt Paths

- Initially ↑ mortality
- ↑ survival during breeding season
- Higher fecundity and ↑ fall recruitment
- Too dense = moved off site → fit cover density

Hunter satisfaction was improved from hunt paths with little to no population consequence...

Managers got it right!
Questions???