Effects of Biomass Harvesting Guidelines on Herpetofauna Use of Clearcuts

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Introduction

Woody biomass is
  • Small-diameter trees
  • Undesirable species
  • Tops and limbs
  • Logging residues
  • Clearcut gleaning

  • Renewable energy
  • “Carbon neutral”
  • Chipped and burned for electricity
  • Liquid transportation fuel
Reptile and Amphibian Use of Woody Debris

- Nesting
- Foraging
- Travel and escape cover
- Mating
- Thermoregulation
Biomass Harvesting Guidelines

- Increased demand for woody biomass
- Several states have BHGs, but each are different
- Specify amount of woody debris to be retained
- Intent is to conserve wildlife habitat
- No research on wildlife response
Objectives

• Determine if reptile and amphibian response varies with amount of debris retention
• Determine if reptile and amphibian response varies with spatial allocation of retained woody debris
Experimental Design

- 8 randomized complete blocks
- 4 blocks (replications) in GA and 4 in NC
Treatments

- All replications clearcut in 2010
- Six 8-ha BHG treatments in each block

<table>
<thead>
<tr>
<th>30 % retention</th>
<th>15 % retention</th>
<th>No BHGs</th>
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<tbody>
<tr>
<td>Dispersed</td>
<td></td>
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<td>Clustered</td>
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<td></td>
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<td>No harvest</td>
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Methods

3 Drift fences with 4 traps each in every treatment

Estimate
• Species Richness
• Relative Abundance
Preliminary Results

- 26,038 trap nights with drift fences
- 25 species of reptiles and amphibians
- 6,967 individuals
Preliminary Results

# captures/100 trap nights

- **southern toad**
- **e. narrowmouth toad**

![Bar chart showing the number of captures per 100 trap nights for southern toad and e. narrowmouth toad in different locations.](chart.png)
Preliminary Results

![Graph showing data points for southern toad and e. narrowmouth toad across different distances to debris piles.](image)
Preliminary Results

Volume of All Piled Debris Within 50m (m³) vs. No. per 100 trap nights

- southern toad
- e. narrowmouth toad
Southern Toad Use of Woody Debris

- Enclosure with 4 treatments
- Treatments surrounded by antennas
- Toads PIT tagged
- Habitat selection
Future Plans

• Add data from 2013
• Woody debris quantification – treatment efficacy
• Microhabitat assessment (temp and relative humidity)
• How do toads use piled debris?
• Estimate detection probability
Questions?