Sustaining Biological Diversity of Southern Forests

Transatlantic Trade in Wood for Energy: A Dialogue on Sustainability Standards and Greenhouse Gas Emissions

Judy K. Dunscomb, Senior Conservation Scientist
The Nature Conservancy in Virginia
October 23, 2013
Proposed & Existing Woody Biomass Facilities

LEGEND

Facility Type
- Fuel Pellet Plant - Operating
- Fuel Pellet Plant - Proposed
- Power Station - Operating
- Power Station (repowered CFPP) - Operating
- Power Station - Proposed
- Power Station (repowered CFPP) - Proposed
- Cellulosic Ethanol - Proposed

Sourcing Area (approximate)
- Operating Facility
- Proposed Facility

Data collected from industry and media releases. Map updated: 7/1/2013

Southern Environmental Law Center
3 Major Forest Types Affected
Overlap with Biodiversity
Historic Range of Longleaf Pine

Taken from Rangewide Conservation Plan for Longleaf Pine, 2009
In 1773, William Bartram described "a vast forest of the most stately pine trees that can be imagined."
Bottomland Hardwoods

Cypress/Tupelo Swamp Forest

Coastal Plain Bottomland Forest
Bottomland Hardwood Condition

Older-growth
(> 100 yrs)

Mid-successional

Early successional
Forest-River Linkages

HERRING FISHERMEN
Images of an Eastern North Carolina Tradition
Frank Stephenson
So, how are we doing?
Longleaf Pine Restoration Model

Significant Landscapes

20,000 acres

1,000,000 acres

Key

- Longleaf Pine Historic Range
- Federally Managed Lands
- Longleaf Pine Acreage by County (FIA)
  - 10,000 - 30,000 acres
  - 30,000 - 100,000 acres
  - 100,000+ acres

ABOUT THIS MAP:
Significant Landscapes for Longleaf Conservation are regions where there is the potential to restore connected landscapes of over 100,000 acres of longleaf pine communities. These significant landscapes were developed from expert opinion and numerous data layers on the occurrence of longleaf forests and the rare and unique species found in this ecosystem. The circles are scaled to represent existing longleaf.

Data Sources:
Longleaf Pine Acreage: USDA Forest Service, Forest Inventory and Analysis (FIA) Data
Conceptual Conservation Model

Table 2. Desired stand conditions for bottomland hardwood forests within the Mississippi Alluvial Valley.

<table>
<thead>
<tr>
<th>Forest variables ¹</th>
<th>Desired stand structure</th>
<th>Conditions that may warrant management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Management Factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overstory canopy cover</td>
<td>60 – 70 %</td>
<td>&gt;80%</td>
</tr>
<tr>
<td>Midstory cover</td>
<td>25 – 40 %</td>
<td>&lt;20% or &gt;50%</td>
</tr>
<tr>
<td>Basal area</td>
<td>60 – 70 ft² / acre</td>
<td>&gt;90ft² / acre</td>
</tr>
<tr>
<td>with ≥25% in older age classes ²</td>
<td>or ≥60% in older age classes</td>
<td></td>
</tr>
<tr>
<td>Tree stocking</td>
<td>60 – 70 %</td>
<td>&lt;50% or &gt;90%</td>
</tr>
<tr>
<td>Secondary Management Factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominant trees ³</td>
<td>≥2 / acre</td>
<td>&lt;1 / acre</td>
</tr>
<tr>
<td>Understory cover</td>
<td>25 – 40%</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Regeneration ⁴</td>
<td>30 – 40% of area</td>
<td>&lt;20% of area</td>
</tr>
<tr>
<td>Coarse woody debris (≥10 inch diameter)</td>
<td>≥200 ft³ / acres</td>
<td>&lt;100ft³ / acre</td>
</tr>
<tr>
<td>Small cavities (≥10 inch diameter)</td>
<td>≥4 visible holes / acre</td>
<td>&lt;2 visible holes / acre</td>
</tr>
<tr>
<td>or ≥4 “snag” stems ≥4 inch dbh</td>
<td>or ≥2 stems ≥20 inch dbh</td>
<td></td>
</tr>
<tr>
<td>or ≥2 stems ≥26 inch dbh</td>
<td>or &lt;1 stem ≥20 inch dbh</td>
<td></td>
</tr>
<tr>
<td>Den trees/large cavities (≥10 inch diameter)</td>
<td>1 visible hole / 10 acres</td>
<td>0 visible holes / 10 acres</td>
</tr>
<tr>
<td>or ≥2 stems ≥26 inch dbh</td>
<td>or &lt;1 stem ≥26 inch dbh</td>
<td></td>
</tr>
<tr>
<td>(&lt;8 ft² BA ≥26 inches dbh)</td>
<td>or &lt;1 stem ≥20 inch dbh</td>
<td></td>
</tr>
<tr>
<td>Standing dead and/or stressed trees ⁵</td>
<td>≥6 stems / acre ≥10 inch dbh</td>
<td>&lt;4 stems ≥10 inch dbh / acre</td>
</tr>
<tr>
<td>or ≥2 stems ≥20 inch dbh</td>
<td>or &lt;1 stem ≥20 inch dbh</td>
<td></td>
</tr>
<tr>
<td>(&lt;4 ft² BA ≥10 inch dbh)</td>
<td>(&lt;4 ft² BA ≥20 inch dbh)</td>
<td></td>
</tr>
</tbody>
</table>

LMVJV Forest Resource Conservation Working Group, 2007

waterway + floodplain forest
Conclusions

1. Southern Forests have been significantly modified from reference conditions by centuries of resource extraction.

2. Those modifications have simplified forest structure and composition, resulting in habitat loss.

3. High Conservation Value Forests benefit from being embedded within a matrix of lands managed for forest products vs. developed lands.
In order to ensure sustainability of southern forests, NGO’s, forest industry, public land managers, and other stakeholders should work together to systematically identify High Conservation Value Forests (HCVF) and Representative Forest Types (RSA’s), plan for their conservation and restoration.
Acknowledgements

Brian van Eerden
Chuck Peeples
Jean Lorber
Troy Ettle