Environmental Aspects of Sustainable Forestry in Georgia

Georgia Environmental Conference
August 2013

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Forests and the Environment

- Forests provide important ecosystem services.
- Tree cutting sparks emotional opposition.
- “Working forests” can be engines for sustainable development and ecological restoration.
A Landscape in Brazil
Landscape with Planted Forests
Attributes of Forests as Sources of Renewable Energy and Materials

• High biomass density (per ha and per cu. meter)
  – Major factor affecting cost of harvest and haul

• Wood is stored “on the stump” and can be harvested throughout the year.

• Forests typically grow on soils not suitable for annual crop production.

• Low input requirements.
Harvesting Eucalyptus
Attributes of Wood as a Feedstock for Renewable Energy and Materials

• Fit for many purposes; affordable; reliable
• Natural; renewable; recyclable; compostable
• Climate friendly if produced sustainably
# Georgia’s Forestry Sector

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Forest Sector Employment</td>
<td>&gt; 42,000</td>
</tr>
<tr>
<td>Annual Payroll</td>
<td>$2.6 billion</td>
</tr>
<tr>
<td># Manufacturing Facilities</td>
<td>233</td>
</tr>
<tr>
<td>Value of Shipments</td>
<td>$14.3 billion</td>
</tr>
<tr>
<td>State and Local Taxes</td>
<td>$205 million</td>
</tr>
<tr>
<td>Timberland Area</td>
<td>24.2 million acres</td>
</tr>
<tr>
<td>Private Timberland</td>
<td>92%</td>
</tr>
</tbody>
</table>
Georgia’s Wood Using Industries

- Building Products and Construction
- Packaging
- Personal Hygiene Products
- Food Service
- Printing and Publishing
- Bioenergy
- Chemicals and Basic Materials
  - Textiles and Apparel
  - Consumer Electronics
  - Pharmaceuticals
  - etc.
## Georgia’s Renewable Energy Portfolio (2011)

| Source: U.S. Energy Information Administration |
| Note: Fuel Ethanol includes two percent of consumption attributed to waste and byproducts associated with ethanol production |

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Percent of Consumption</th>
</tr>
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<tbody>
<tr>
<td>Wood</td>
<td>70</td>
</tr>
<tr>
<td>Fuel Ethanol</td>
<td>18</td>
</tr>
<tr>
<td>Hydro</td>
<td>11</td>
</tr>
<tr>
<td>All Other</td>
<td>1</td>
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</table>
Economic returns to timber help keep forests on Georgia’s landscapes.
## Forest Cover in Georgia (%)

<table>
<thead>
<tr>
<th>Area</th>
<th>1930s</th>
<th>1980s</th>
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<tbody>
<tr>
<td>Mountains</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Piedmont</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Upper Coastal Plain</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>Lower Coastal Plain</td>
<td>46</td>
<td>65</td>
</tr>
</tbody>
</table>

Environmental Attributes of Working Forests

• Produce clean water when BMPs are used
• Provide excellent habitat for many wildlife species
Key Environmental Challenges for Sustainable Forestry in Georgia

- Population Growth
- Biodiversity
- Policy Issues
Biodiversity and Sustainable Forestry

• Working forests provide excellent habitat for many species (including many species of conservation concern).

• Endangered Species Act and forest certification programs set ambitious goals and impose costly management constraints on working forests.

• Management constraints in protected areas are even more costly and sometimes ineffective and / or counterproductive.
U.S. Ecoregions and Protected Areas
Protected Areas in Georgia
NCASI Biodiversity Research Topics

• Habitat requirements and conservation options for high priority species
  – e.g., gopher tortoise, eastern diamondback rattlesnake, etc.

• Benefits and costs of biodiversity conservation strategies for working forests
  – e.g., “retention” of living and dead trees within timber harvest units
Key Regulatory and Policy Arenas

• Clean Air Act
• Clean Water Act
• Endangered Species Act
• FIFRA
• Forest Certification
An Overarching Concern

• Increasing cost, complexity, legal risk, and uncertainty

• Less investment and innovation in forestry and forest-based manufacturing
Northern Spotted Owl
Spotted Owl Listed in 1990
Selected Examples of Current Issues

- Clean Air Act
  - NAAQS for fine particulate matter
- Clean Water Act
  - Numeric criteria
- Endangered Species Act
  - Listing process
- Forest Certification
  - Biodiversity guidelines
Summary

• Working forest paradox
  – Environmental lightning rod
  – Engines of sustainable development and ecological restoration

• Forest protection strategies have important limitations

• Key challenges for sustainable forestry in GA
  – Population growth
  – Biodiversity
  – Policy and regulatory issues