Forests for a Richer Future

Keeping Forests Working for People

Hal Salwasser
Oregon State University, College of Forestry
Medford Rotary
Medford, OR
Feb 24, 2006

Global Forest Trends

- Forest area: ~ 9.6 billion ac; ~ 39% loss since 8,600 ybp;
- Massive losses 1400-1900 ce (UN FAO 2005, Williams 2003)
- Historic: Population Growth + Economic Growth = Forest Loss
- But not anymore: ~ 32 mil ac/yr in tropics, ~ 14 mil ac/yr in non-tropics
- US forestland net area = stable since 1920: 749 million acres
- Demands for forest benefits ever growing
  - Space for human habitation: biggest force changing forests worldwide
  - Water quality, quantity: THE biggest future global forest resource is
  - Wood use: + 0.3 to 0.5%/yr long term growth; supply solid; illegal harvest
  - Biodiversity conservation: yes but public bewildered about what it means
  - Carbon storage: how to account, trees + products, market uncertainty
  - Recreation, subsistence & cultural uses: highly variable by ownership

Global & U.S. Wood Use

- Ind. wood use rose 40% from 1960 to 1990:
  - ~ 1.6 BCM in 2000, but recent growth slowing due to conservation
  - Football field covered with wood ~ 185 miles high, endzones Ind
  - ~ 1%/yr pre-1990; ~ 0.3-0.5%/yr post 1995
  - Fuel wood use > industrial wood use: ~ 1.8 BCM and growing?
  - Ind. wood use could increase < 33% by 2050: from 1.6 - 2.1 BCM
  - ~ 75% of global wood and fiber may come from planted forests by
    mid century or earlier (Sedjo and others)
  - ~ 31% of global solid wood consumption crossed an international
    boundary from tree to product in 2000; most likely to increase
  - US imported ~ 38% of softwood lumber consumed in 2004
    (Adams)

The Demand Crunch

US Net SW Lumber Imports

Sources: Howard 2003, Random Lengths 2005

Oregon in US Context
### Threats to U.S. Forests

1. Urban-exurban sprawl (< 1 million ac/yr 1990s; > 16 houses/mi (contiguous forestland)
2. Loss of share in global wood markets (drives disinvestment, land use change)
3. Invasive species (changes ecosystem structure, function)
4. Uncharacteristically intense fires, storms, pest epidemics (translates forest condition, function)
5. Global climate change (reassesses species composition)
6. Rising regulatory costs (drives disinvestment, land use change)
7. Decline in capacity for management (access to capital, infrastructure)
8. Unmanaged recreation in some public forests (damages soils, waters, native flora and fauna)

### Sustainability

- **Progressive** improvement in human well being, economy, and environment
- **Equity** across societal sectors and generations
- **Engaging** people in policy choices that affect them
- **Adaptation** to pervasive change

### Breadth of Sustainable Forest Management

- Varies by forest type, ownership, primary purpose
- Primary forest purposes:
  - Wood and fiber production
  - Multiple resource values/uses
  - Reserves, nature preservation
  - Urban and community forests

### Wood Production Forests

- Most of world’s future wood will come from planted forests:
  - ~ 33% now, ~ 75% by 2050
  - ~ 10% or less of global forest area
- Primary purposes:
  - Grow trees for wood, fiber
  - Increase forest value to owner
- Management challenges:
  - Thrive in global markets
  - Increase wood yield 2-3X over natural
  - Improve environmental outcomes
  - Improve wood quality, consistency
  - Produce high return on investment
  - Revenues from non-wood benefits
  - Maintain social license to operate

### Multi-resource Forests

- Most of the world’s accessible forests have multiple resource purposes
  - ~ 40% of global forest area eventually
- Primary purposes:
  - Meet diverse landowner objectives
  - Increase forest value to owner(s)
- Challenges:
  - If US federal, clarify purposes and direction
  - Deliver multi-resource/value outcomes at acceptable costs
  - Differentiate products in markets
  - Finance non-wood benefits
  - Finance management of federal lands

### Why Pac-west for Wood?

<table>
<thead>
<tr>
<th>Cubic Meters/ Ha/ Year Growth @ CMAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>US South intensive pine</td>
</tr>
<tr>
<td>Western US intensive D-fir</td>
</tr>
<tr>
<td>Brazil eucalyptus</td>
</tr>
<tr>
<td>New Zealand radiata</td>
</tr>
<tr>
<td>Boreal countries managed</td>
</tr>
<tr>
<td>World ave. natural</td>
</tr>
</tbody>
</table>

Data accurate only in relative sense; management intensity, years to CMAI vary
**Reserve Forests**

- Parks, wilderness, natural areas:
  - ~12% worldwide in 2000
  - ~50% of global forest area eventually
- Primary purposes:
  - Sustain at-risk species, natural processes, "wild" ecosystems
  - Recreation, cultural uses
- Management challenges:
  - Minimize human use impacts
  - Restore, promote wilderness, naturalness
  - Ameliorate effects of invasive species, air pollution, explosive natives
  - Achieve goals for least costs
  - Finance management

**Urban, Community Forests**

- Where 80% of the people live
- Primary purposes:
  - Attractive communities, neighborhoods
  - Conserve resources: water, energy
  - Increase property values
  - Backyard wildlife habitats
- Management challenges:
  - Safety, infrastructure impacts
  - Minimize sprawl
  - Minimize invasive species escapes

**Oregon’s Current Balance**

Forest Area by Primary Purpose

- Reserve 31%
- Wood Production 33%
- Multi-resource* 33%

* This includes 2.5 million acres of federal matrix and AMAs which currently are not fully serving their designated purpose

**Ownership Matters**

<table>
<thead>
<tr>
<th>Commodity Wood</th>
<th>Quality Wood</th>
<th>Multi-resource w/ Wood</th>
<th>Multi-resource w/o Wood</th>
<th>Managed Reserve</th>
<th>Un-managed Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry, TIMO, REIT</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private, large</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family, small-medium</td>
<td></td>
<td></td>
<td></td>
<td>States, Tribes, ENGOs</td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Streamside zones, leave trees, habitats as mini or micro reserves
Oregon Forests

- State
- Federal
- Tribal
- Private

Oregon Forest Owners

- 28 million acres; 45% of state
- Federal 57%
- Ind/TIMO/REIT 21%
- Other Public 6%
- Family 15%

Oregon Timber Harvest

- 4.45 BBF 2004
- 28 million acres; 45% of state
- Federal 10%
- Tribal 2%
- State 7%
- Family 13%
- Other Public 1%

Forest Sector in Economy

- Primary, Secondary, Services
  - $12.6 billion total industrial output (TIO); 6.3% of State TIO
  - 85,600 direct jobs; 4% of State total
  - $3.5 billion wages; ave wage = $40,525;
    State ave. wage = $34,840
- Forest recreation/tourism
  - $1.6 billion TIO; 37,900 jobs

Challenges

1. Keep forest lands in forest uses for forest values
   - Sustain forests in face of global/US forces of change
   - Requires a globally competitive domestic forest cluster
2. Better utilize capacity of federal forests to meet share of domestic demand for wood-based products, restore forest health, create wealth and rural jobs
   - Rationalize federal wood supply and reduce admin. costs
   - Restore and sustain health of at-risk federal forests
   - Improve production, product, and conservation efficiency
3. Boost productivity of private forests
   - Science and technologies for productivity enhancement
   - Product and practice innovations for competitive advantage
   - Science for regulatory efficiency: costs = outcomes
4. Attract capital investments

NW Forest Fire Regimes

- Pre-1900
- Recent

Source: Quigley 1996
To Log or Not?

- Management plan goals for area?
- Post-fire forest conditions re plan goals?
- Ecological and economic outcomes of logging or not logging positive or negative?
- If answers show logging is warranted:
  - Rapid decision and action within 1st year after fire
  - Use wealth from logs to cover forest restoration costs
  - Fund research and monitoring to improve practices over time

Richer Future Forests?

If we wisely use, conserve and manage forest resources to meet human needs and wants based on local experience plus ever improving science and technologies, we will have healthy, productive, resilient future forests for all values.

If we do not use forests or use them unwisely, we will lose private forest to other land uses and we will lose public forest health and vitality to fires, insects, and invasive species.