Forests for a Richer Future

Keeping Oregon in the Lead

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What We’ll Cover

- Forestry deans’ vision for forests
- American forests in a global context
- Sustainability and forests
- Different roles for different forests
- The work ahead

Forests for a Richer Future

- Protected, managed, conserved, and used to meet the changing needs of people based on forest capabilities, landowner and societal goals, local knowledge, and ever improving science and technologies;
- Vibrant, healthy, resilient and dynamic ecosystems that sustain the quality of human life through a diverse array of uses, products, values and services
- Constant sources for learning about relationships between people and natural resources

Forest Values, Sources for Life

- Clean water and air
- Abundant fish and wildlife
- Wood and fiber
- Jobs and personal identity
- Wealth for society and revenues for owners
- Cultural heritage
- Climate, carbon, and ecosystem services
- Recreation and aesthetics
- Non-wood forest products

Global Context

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Global Forest Trends

- Forest area: ~ 9.6 Billion ac; est. 50% loss since 8,000 ybp; massive losses 1400-1900 ce (FAO 2005, Williams 2003)
- Contemporary loss: ~ 23 Million ac/yr in 1990s (FAO 2003)
- Historic: Population Growth + Economic Growth = Forest Loss
- But not anymore: - 30 mil ac/yr in tropics, + 7 mil ac/yr in non-tropics 1990s
- Rate of loss slowing since 2000
- Demands for forest benefits ever growing
- Space for human habitation: biggest force changing forests worldwide
- Water: quality, quantity: THE biggest future global forest resource issue
- 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 Forces of Change
- Population growth: ~ 6B in 2000 → ~ 8B in 2050
- Technology: steady advances + breakthroughs
- Political instability: local to global, ballot measures to wars
- Trade: barriers/subsidies, free vs fair, black markets
- Industry dynamics: global consolidation, company disintegration, timberland as financial investment
- Rich-poor gap: growing, poor still cutting into forest
- "Green" consciousness: more than air/water
- Consumption growth: space, water, fossil fuels, food, wood, minerals
- Climate change: yes but variable, uncertain regional effects
- Pioneering species: invasives transforming ecosystems

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
  - ~ 1%/yr pre-1990, ~ 0.3-0.5%/yr past 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 (FAO)
- US 22% of world’s solid wood production; 30% of consumption in 2000
- US imported ~ 38% of softwood lumber consumed in 2004 (Adams)
- 34% growth since 1990; Canada now supplies ~ 38% of US consumption
- Projected to > 40% in next decade; off shore growth w/ Canadian decline
- ~ 1%/yr pre-1990; ~ 0.3-0.5%/yr post 1995

US in Global Context

Pervasive Change
Sustainability depends on bold yet prudent risk taking, continual learning and adaptation; all fueled by wealth creation plus research, technology and innovation

Oregon in US Context

Threats to U.S. Forests
1. Urban-exurban sprawl (< 1 million ac/yr 1990s; > 16 houses/m² of contiguous forestland)
2. Loss of share in global wood markets (drives disinvestment, then land use change)
3. Invasive species (changes ecosystem structure, function)
4. Uncharacteristically intense fires, storms, pest epidemics (transforms forest condition, function)
5. Global climate change (reassembles species composition)
6. Rising regulatory costs (drives disinvestment, then land use change)
7. Decline in capacity for management (access to capital, infrastructure)
8. Unmanaged recreation in some public forests (damages soils, waters, native vegetation)
**Sustainability**
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**Sustainable Forestry**
The suite of policies, plans, and practices that seek to protect, produce, and perpetuate forest ecosystems for the values, uses, products, and services desired by communities and landowners for this and future generations

National Commission on Science for Sustainable Forestry 2005

**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

**Every Forest has a Role**
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**Wood Production Forests**
- Most of the world’s future wood will come from planted forests:
  - ~ 33% now, ~ 75% by 2050
  - 15% 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: > 2x over natural
  - Improve environmental outcomes
  - Improve wood quality, consistency
  - Produce high return on investment
  - Revenues from non-wood benefits
  - Maintain social license to operate
Why Pac-west for Wood?

Cubic Meters/Ha/Year Growth @ CMAI

- US South intensive pine
- Western US intensive D-fir
- Brazil eucalyptus
- New Zealand radiata
- Boreal countries managed
- World ave. natural

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

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

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

Ownership Matters

- Wood Production: mostly federal, some state, tribal, private and ENGO
- Forest Sustainability: Multi-resource w/ Wood
- Environmental Benefits: Managed Reserve
- Social Benefits: Multi-resource w/o Wood
- Economic Benefits: Un-managed Reserve

*Streamside zones, leave trees, habitats as mini or micro reserves*
Site Class by Ownership

<table>
<thead>
<tr>
<th>Site Class by Ownership</th>
<th>Million Acres by Site Class in U.S. (annual growth in cu ft/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Forest</td>
<td>1 = &gt;120</td>
</tr>
<tr>
<td>Other Public</td>
<td>2 = 85-120</td>
</tr>
<tr>
<td>Forest Industry</td>
<td>3 = 50-85</td>
</tr>
<tr>
<td>Family Forests</td>
<td>4 = 20-50</td>
</tr>
<tr>
<td></td>
<td>5 = 0-20</td>
</tr>
</tbody>
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California is NOT the Model

Leadership Wanted!
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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 for wood supply from federal forests to maintain forest health, create wealth, meet some of domestic demand for wood-based products
   - Improve production, product, and conservation efficiency
   - Restore and sustain health of at-risk federal forests
   - Rationalize federal wood supply and reduce admin. costs
3. Boost productivity of private forests
   - Science and products for productivity enhancement
   - Product and practice innovations for competitive advantage
   - Science for regulatory efficiency
4. Attractiveness in global capital markets

Everyone has a Role

Consumer Roles ...
- Be intelligent consumers of sustainably produced, domestic, renewable natural resources
- Avoid excessive use, use of non-renewable substitutes for wood, transfer effects of consumption that degrade ecosystems somewhere
- Make choices based on full impacts over time and space and the entire life cycle of resource uses
- Support policies and management that produce resources for quality of life
- Pay producers fairly for goods and services used and expected
**Producer Roles ...**
- Optimize value of land: value to acre
- Intensive silviculture on best lands to meet wood needs
- Revenues for non-wood forest values: C, recreation, habitat, NTFP
- Broaden "forest products" -- wood + non-wood benefits
- Reserve that deliver conservation outcomes efficiently
- Real estate when all else fails
- Marketing: deliver what customers want from different lands
- Ownership efficiencies: lands to HBV/O for purpose
- Focus on execution to purpose: minimum bureaucracy, outcomes over process, regulatory efficiency
- Product quality, niches, customer service
- Invest in R&D for production, quality, efficiency

**Logger Roles ...**
- Efficient harvest with exemplary environmental performance
- Capture the value in the tree
- Buck and sort for optimal value retention
- Minimize soil and water impacts
- Leave the land ready for reforestation
- The link between growers and manufacturers
- Trees don't get to mills without loggers and truckers
- Growers and manufacturers don't get optimum value without excellence in logging
- Significant influence on future forests
- With efficient, environmentally sensitive logging all the rest is easier
- Without it everything costs more and doesn't work as well

**Government Roles ...**
- Maintain good business climate:
  - Encourage manufacturing, traded sector
  - Maintain transportation infrastructure
  - Seek regulatory efficiency
  - Maintain equitable tax, trade policies
  - Facilitate equitable certification, level playing field
- Policies informed by relevant science and mainstream social values
- Manage public lands for economic, community and environmental benefits
- Be good neighbors; don't pose threats, liabilities

**University Roles ...**
- Educate a highly skilled, diverse, adaptable, problem-solving forest/mill workforce, future scientists, teachers
- Create a stronger science base for all forest management systems: improve regulatory efficiency
- R&D for improved market and environmental performance of forests, forest products, forest business
- R&D to increase productivity and sustainability of forest resources, forest products, forest businesses
- Educate citizenry on needs for production and conservation
- Advocate science objectivity in policies; 3rd party credibility
- Advocate for diverse, productive, resilient forests and associated economies and human communities

**The Case for Management**
- Wood Production Forests
  - Sustain progressive productivity and increase value as forests
  - Compete in global markets
  - Excel in commodity woods, customer service
  - Add value, differentiate wood and wood-based products; marketing
  - Sustain resilience to drought, insects, disease, fire
- Multi-resource Forests
  - Sustain joint resource production/conservation
  - Diversify revenues to finance management: quality wood + recreation + ecosystem services + biomass energy
  - Restore diversity, resilience to drought, insects, disease, fire
- Reserve Forests
  - Restore wilderness and natural processes
  - Contain human impacts

**Enhancing Forest Sector Advantage**

**OSU College of Forestry Initiatives**
- Planted Forest Productivity and Value Enhancement – Genes to Harvest
  - Prof. Doug Maguire
- Watersheds Research Cooperative – Building Science for Efficient Regulations
  - Prof. Ann Doughty
- Wood Quality – Aligning Forestry to Markets
  - Prof. Roland Gerber
- Advanced Technology and Value Maximization – Harvest to Mills
  - Prof. Glen Murphy
- Forest Ecosystem Health – Linking Restoration to New Products and Energy
  - Prof. Bill
- Wood Innovation Center – Mills to Markets
  - Prof. Scott Lavenoug
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.