

Sustainable Forestry? Plantation Solutions?

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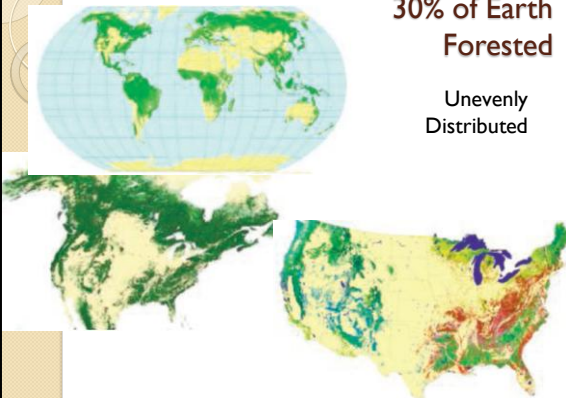
Your instructor's biases

- I love trees, & I love forests & I love wood!
- I love to use wood, too.
- Americans are surrounded, supported, inspired, and influenced by wood from the cradle to the grave!
- Our history & our culture has been shaped by our love/hate relationship with forests.
- 30% of the earth is forested, 33% of North America, and 33% of USA.



30% of Earth Forested

Unevenly
Distributed



We have a voracious appetite

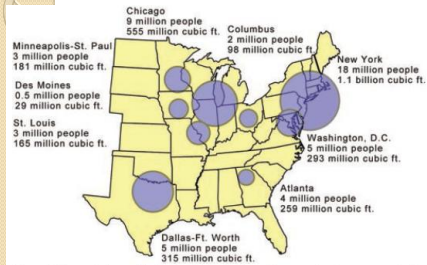


Figure 1. Conceptual woodsheds, 2000. Circles show the approximate area required to satisfy annual wood consumption (on a simple cubic foot basis) for each named metropolitan area. Circles indicate area where current net annual growth of growing stock on timberland is equal to 87% of consumption for the metro area population. Analysis assumes

- Per capita consumption 70.1 cu ft
- Much more than our forest harvest
 - Net importer of 16%
- 1/3 of our softwood from Canada

Forests are “under attack”

- Land conversion (to agriculture & development)
- Fire, fire, fire
- Climate change & modification
- Insects and disease
- Demand for wood is increasing
 - Fire wood, lumber, pulp, biofuels
- Harvest in USA is declining
- We restrict harvest for other ecosystem services (water, wildlife, recreation . . .)

Increasingly Seek Sustainable forestry

1. Forested ecosystems are not sustainable if biomass losses exceed growth over time.
2. Forest harvesting is unpopular & unaesthetic
3. We use a lot of wood!
20 billion cu ft/yr (~70 ft³ per person)
4. USA is a net importer of wood (16%)
5. By importing wood, we export the environmental, economic, & social consequences

Increasingly Seek Sustainable forestry

6. There are many good reasons to use wood as a natural resource
 - Abundant, renewable recyclable & biodegradable
 - Produce clean water, air, wildlife and recreation
 - Trees sequester carbon
 - Requires little energy to convert to useful products
7. There is a finite area from which the wood we use must come (9.6 billion acres)

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How Sustainable is Forestry?

- Most natural resources are non-renewable and they are not sustainable, (oil, gas, coal, concrete, metals, uranium)
- We “think” there is no social or economic penalty associated with overconsumption of forest products because we export our environmental issues to other nations.

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Shifley's definition of sustainable forestry

- Shifley says, “...forested ecosystems are not sustainable if volume or biomass losses exceed growth over large areas or long periods of time.” (p.187)
- “If our goal is globally sustainable forests, then it is illogical to remain a net importer of wood when we have forest resources that on an area basis are equivalent to those of the rest of the world and on a per capita basis are more abundant than those of the rest of the world.” (p. 189)

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Shifley's definition of sustainable forestry

- “In fact, harvest levels will have to increase by 40% in the next 45 years to keep pace with projected increases in US population.”
- Greater management intensity can improve forest health. Gypsy moth, Asian long-horned beetle, oak decline, sudden oak death, emerald ash borer, wildfire, global warming—all will have to be dealt with.

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What is the Role of Plantation Forests

- Terms: virgin forests, old-growth forests, natural forests, indigenous forests, naturally functioning forests, plantation forests, conservation forests, heritage forests . . .
- Plantation forests are planted or seeded in one or more indigenous or introduced tree species in the process of afforestation or reforestation.
- Fiber, fuel, erosion control, fix carbon, support local economies
- 3.5% of total global forests

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Criticisms

- Characteristically monoculture plantings
- May be planted on land previously covered in natural forests
- Expanded use of genetically modified trees
- Herbicide and pesticide applications
- Short rotations to harvest: 5-10yrs to <30 yrs
- Expanding in USA (17 million acres or 5.6% of total forest cover)
- “Unaesthetic” / Fragmentation/ Lacking in biodiversity

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Cooridor-patch-matrix

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Biodivers Conserv (2008) 17:925–951

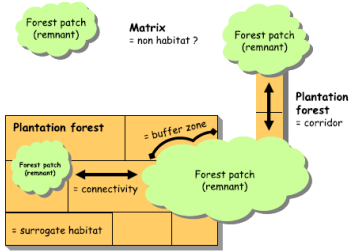
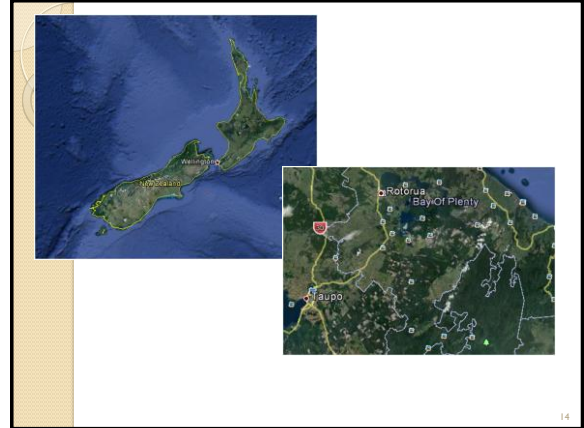


Fig. 2 The 'corridor-patch-matrix' landscape model showing a highly fragmented landscape example with ca. 85% loss of natural forest and ca. 20% plantation forest. Modified after Forman (1995) and Lindenmayer and Franklin (2002)

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