This year in review

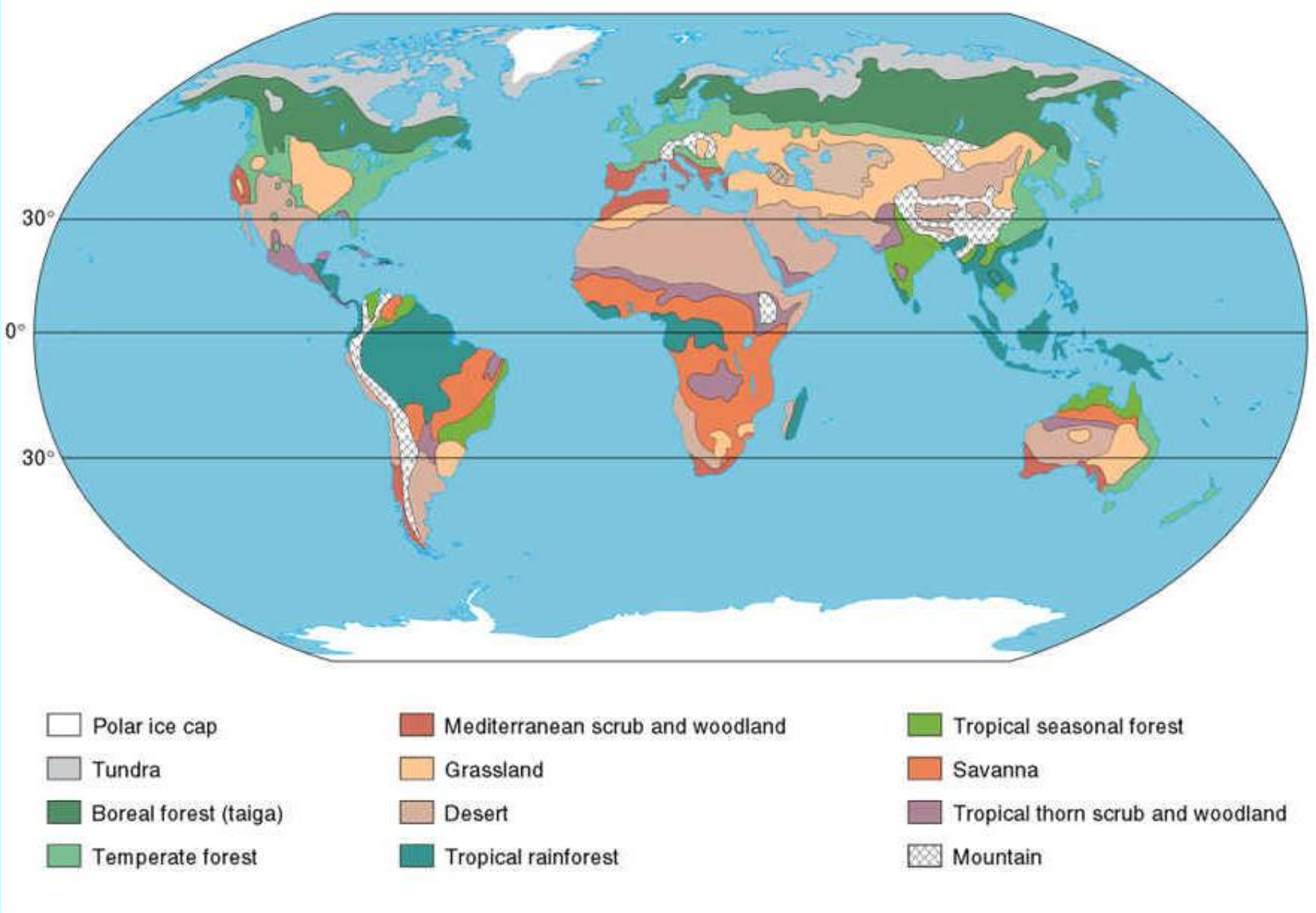
How did we study this?

- Unit I Forests
- Unit II Managing Forests
- Unit III Issues in Forest Sustainability

What is a Forest?

A forest is a vegetative community dominated by trees and other woody perennials.

The Worlds Major Forest Biomes



Lecture 3: Forests of the World (I)

Boreal Forest Biome

- Boreal forests are characterized by long severe winters and short cool summers with only 50-100 frost free days. Precipitation is low (400-500 mm.) falling largely as snow. however, available soil moisture is high.

- How much rainfall does Vancouver get?
  - About 1100 mm

(Source: McColgan, 2005)

Near
Vancouver

Forests of Canada

- Canada is one of the most forested nations in the world
- Low populations
- Generally low productivity
- Highly glaciated soils
- Complex social structure

Lecture 7: Forests of the World (IV)

Tropical Rain Forest

- Temperature varies little throughout the year
  - Average annual temperature is around 20 degrees Celsius
- Rainfall is relatively evenly distributed
  - Annual precipitation is generally more than 2500 mm

No distinct season ⟶ Tree growing season is year round

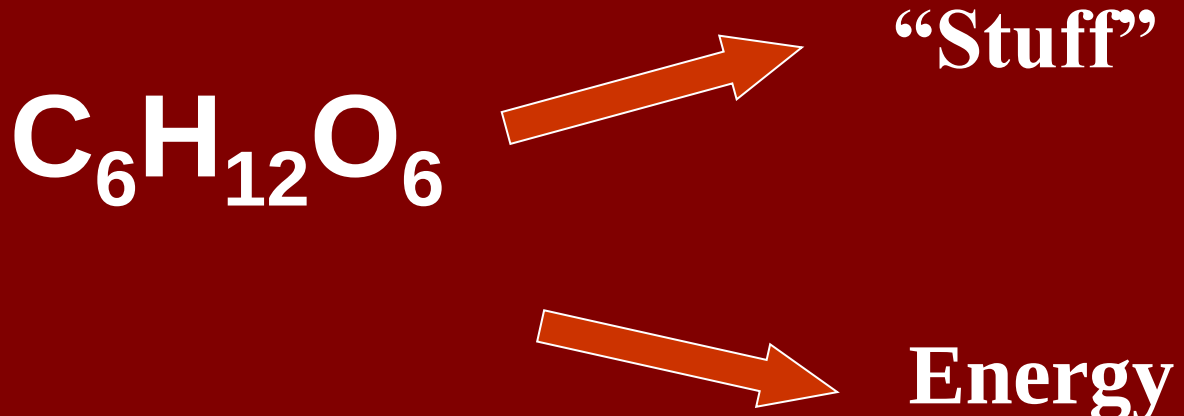
Lecture 7: Forests of the World (IV)

Tropical Rain Forest

Soils:

- generally infertile
- deeply weathered and heavily leached
- often bright red in colour due to concentrations of iron and aluminum oxides
- little accumulation of organic matter due to rapid bacterial breakdown (7-8 months)

Photosynthate



Respiration

$C_6H_{12}O_6 \longrightarrow CO_2 + H_2O$

$+$

O_2

ENERGY

(Not balanced)

Lecture 10: What is an Ecosystem?

Whittaker (1975)

"an ecosystem is a functioning system that includes an assemblage of interacting organisms (plants, animals, and saprobes) and their environment, which acts on them and on which they act"

Lecture 10: What is an Ecosystem?

Role of Disturbances

- Resistant
  - Ecosystem property of remaining essentially unchanged
- Resilient
  - Ecosystem property of recovering quickly
  - Recovering to what?

Goal of Silviculture

To produce the goods and services that the landowner and society in general desire

Lecture 15: Domestication of trees

Plantation
Forestry
High Yield
High Uniformity

Principles of Conservation

1. **Conservation stands for development: the use of existing natural resources for the benefit of the present.**
2. **Conservation stands for the prevention of waste.**
3. **The natural resources must be developed and preserved for the benefit of the many, and not merely for the profit of a few.**

(Pinchot, 1910)

The Outlook

A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.- Aldo Leopold (p. 224-225)

Lecture 18: What is science-based Forestry?

Why make forestry science based?

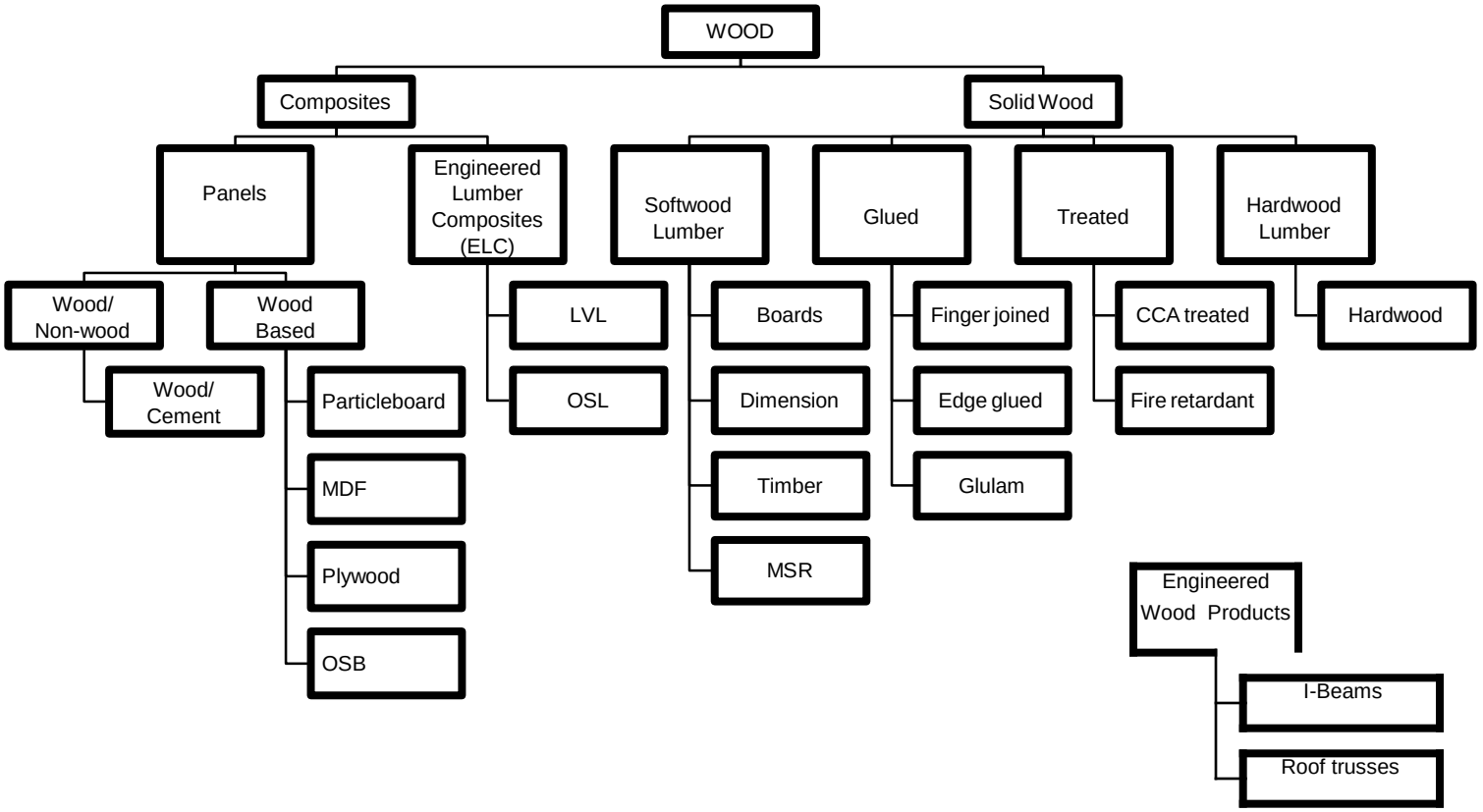
- help facilitate productive discussion among different and competing interests
- help focus the discussion on choices and their consequences rather than on polarized positions.
- increase the understanding of management decisions and help lead to the expected outcomes.

Szaro and Peterson, 2004

Lecture 20: Goods and Service

- Wood fibre
  - Timber
  - Pulp (paper)
  - Fuelwood
- Water
- Recreation
- Wildlife
- NTFP's
  - Mushrooms
  - Berries
  - Boughs
  - Drugs
  - Bark
- Biodiversity
- Spiritual
- Carbon storage

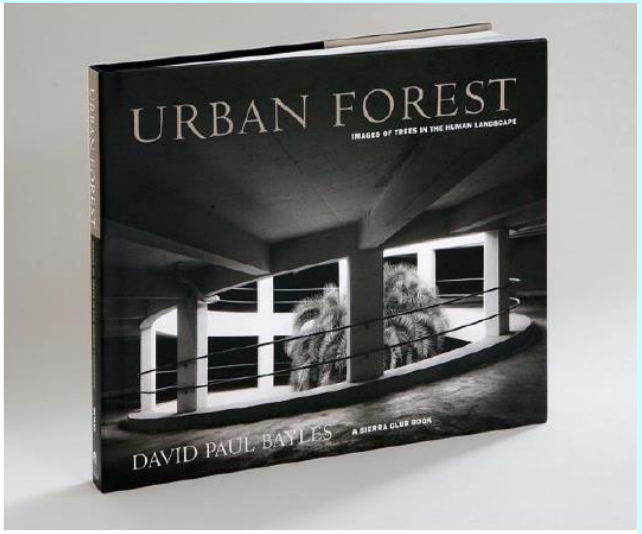
Wood Products Taxonomy



Urban forestry

The art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society

(Helms 1998, based on Miller 1997)



Lecture 26: NTFP

Cultivation - Shiitakes

Joseph O'Brien, USDA Forest Service, Bugwood.org

Berries

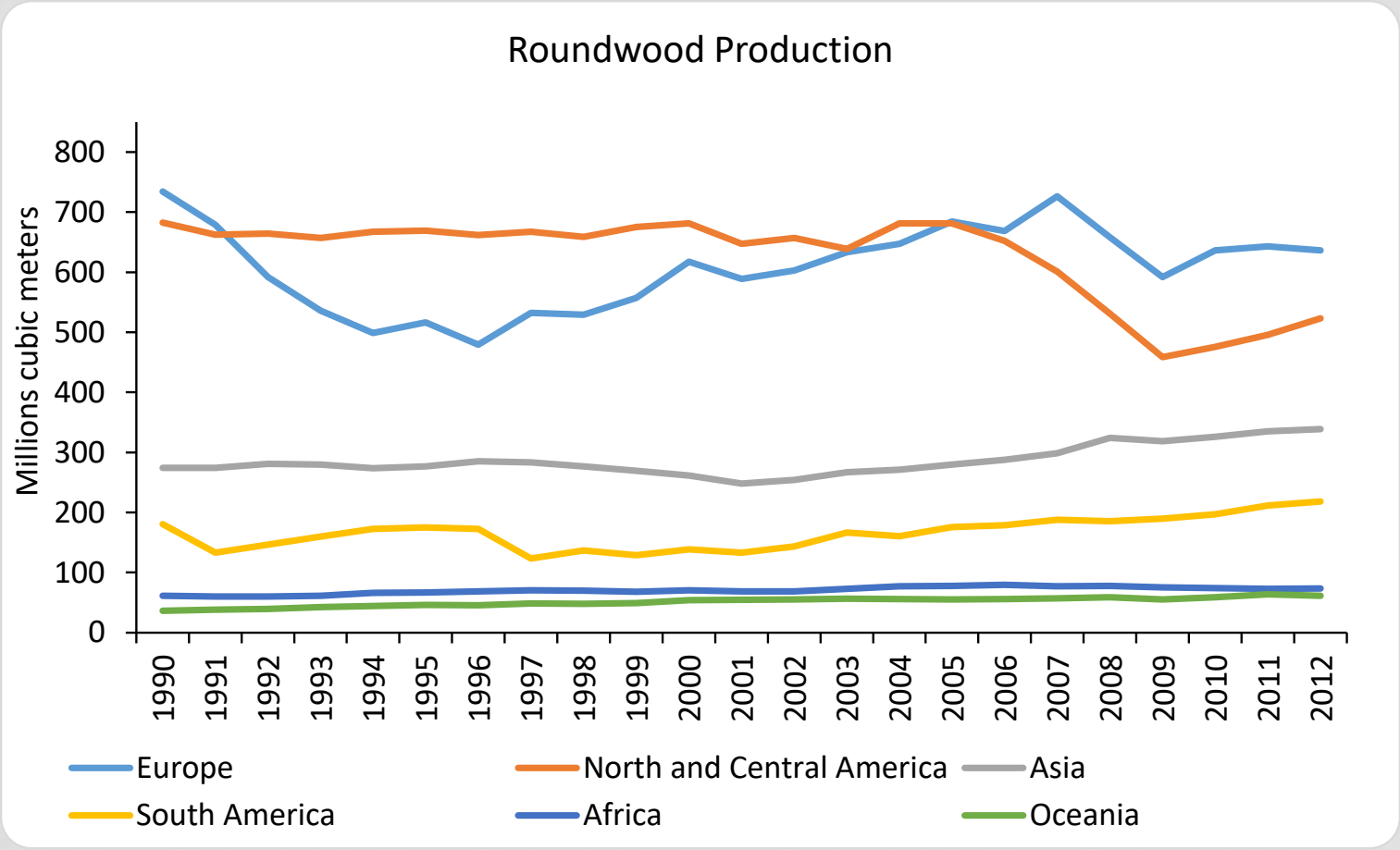
Chris Schnepf, University of Idaho, Bugwood.org

Maple Syrup

Photo by Shadow Hill Maple Syrup

Commercial Christmas tree crops

David J. Moorhead, University of Georgia, Bugwood.org


Roundwood Production
Millions cubic meters
800
700
600
500
400
300
200
100
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Europe
North and Central America
Asia
South America
Africa
Oceania

Lecture 28: Forest Certification

Why Forest Certification?

- Public pressure
- Peer pressure
- Market pressure (especially in env. sensitive markets)
- Governmental pressure (some places)

- May be useful for other purposes:
  - Streamlining forest operations
  - A tool to fight illegal logging
  - Carbon accounting

Main SFM Cerfitication Systems

- FSC (Forest Stewardship Council)
- SFI (Sustainable Forestry Initiative)
- CSA (Canadian Standards Association)
- Standards development; War of standards

Sustainable Forests

What will it take?

Lecture 31: Canadian forest issues

The economy

- What is going on?
  - Will it pick up?
- Will companies continue to expand elsewhere?
  - US, China
- Will companies continue to consolidate?
  - Who will the survivors be?
  - Corporate culture

BC Foresters Act

"practice of professional forestry" means, for fees or other remuneration, advising on, performing or directing works, services or undertakings which, because of their scope and implications respecting forests, forest lands, forest resources and forest ecosystems, require the specialized education, knowledge, training and experience of a registered member, an enrolled member, a special permit holder or a certificate holder, and includes the following: