Brief Overview of Forestry and Information Issues in Canada

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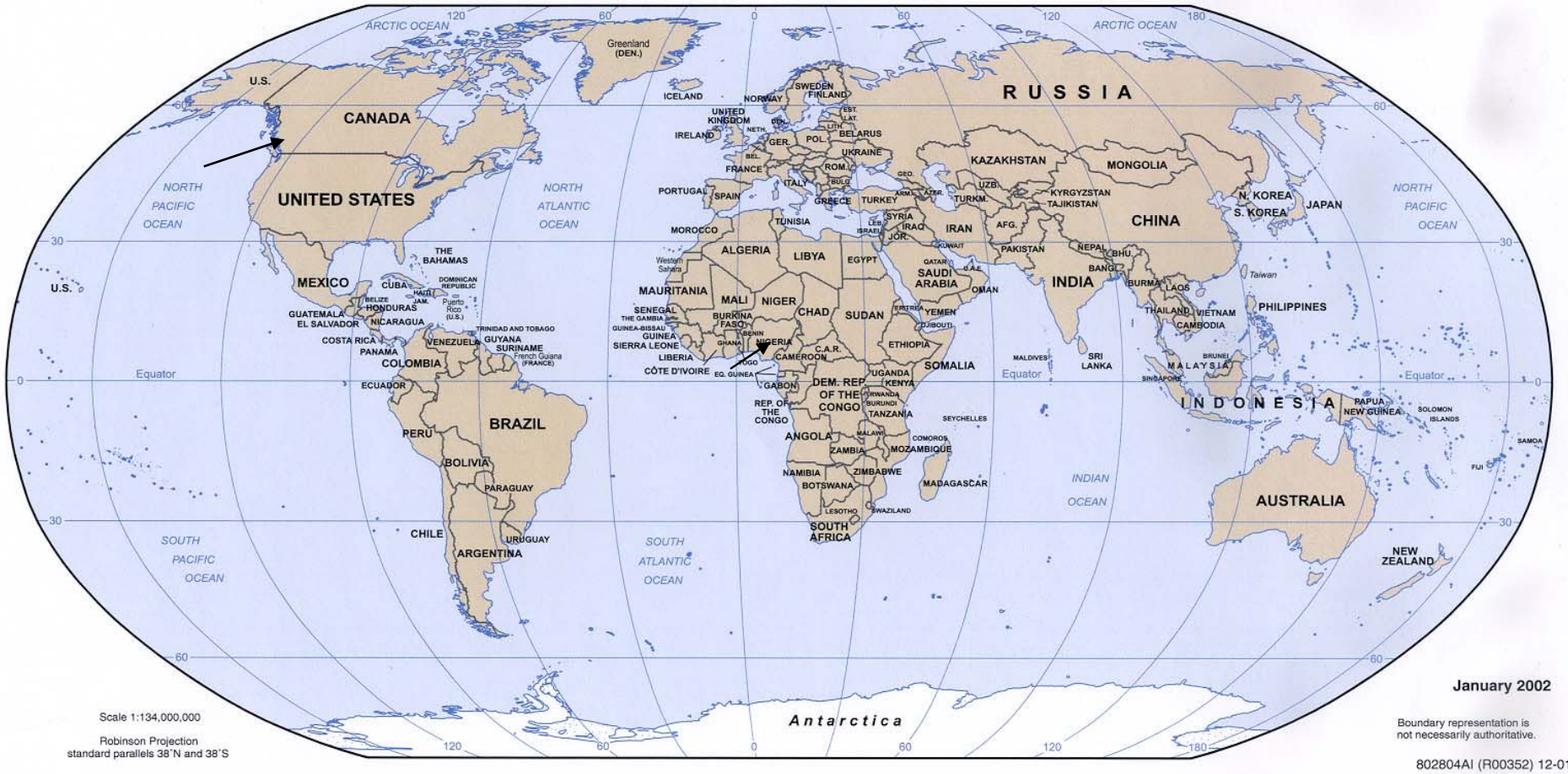
Canada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SAUDI ARABIA
INDIA
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BURMA
LAOS
THAILAND
VIETNAM
CAMBODIA
PHILIPPINES
THE BAHAMAS
MEXICO
CUBA
DOMINICAN REPUBLIC
HAITI
JAM.
BELIZE
HONDURAS
Puerto Rico (U.S.)
GUATEMALA
EL SALVADOR
NICARAGUA
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MALI
NIGER
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YEMEN
OMAN
SENEGAL
THE GAMBIA
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SIERRA LEONE
LIBERIA
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BURKINA FASO
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SOLOMON ISLANDS
TRINIDAD AND TOBAGO
GUYANA
SURINAME
French Guiana (FRANCE)
VENEZUELA
COSTA RICA
PANAMA
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Antarctica
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January 2002
Scale 1:134,000,000
Robinson Projection
standard parallels 38°N and 38°S
Boundary representation is not necessarily authoritative.
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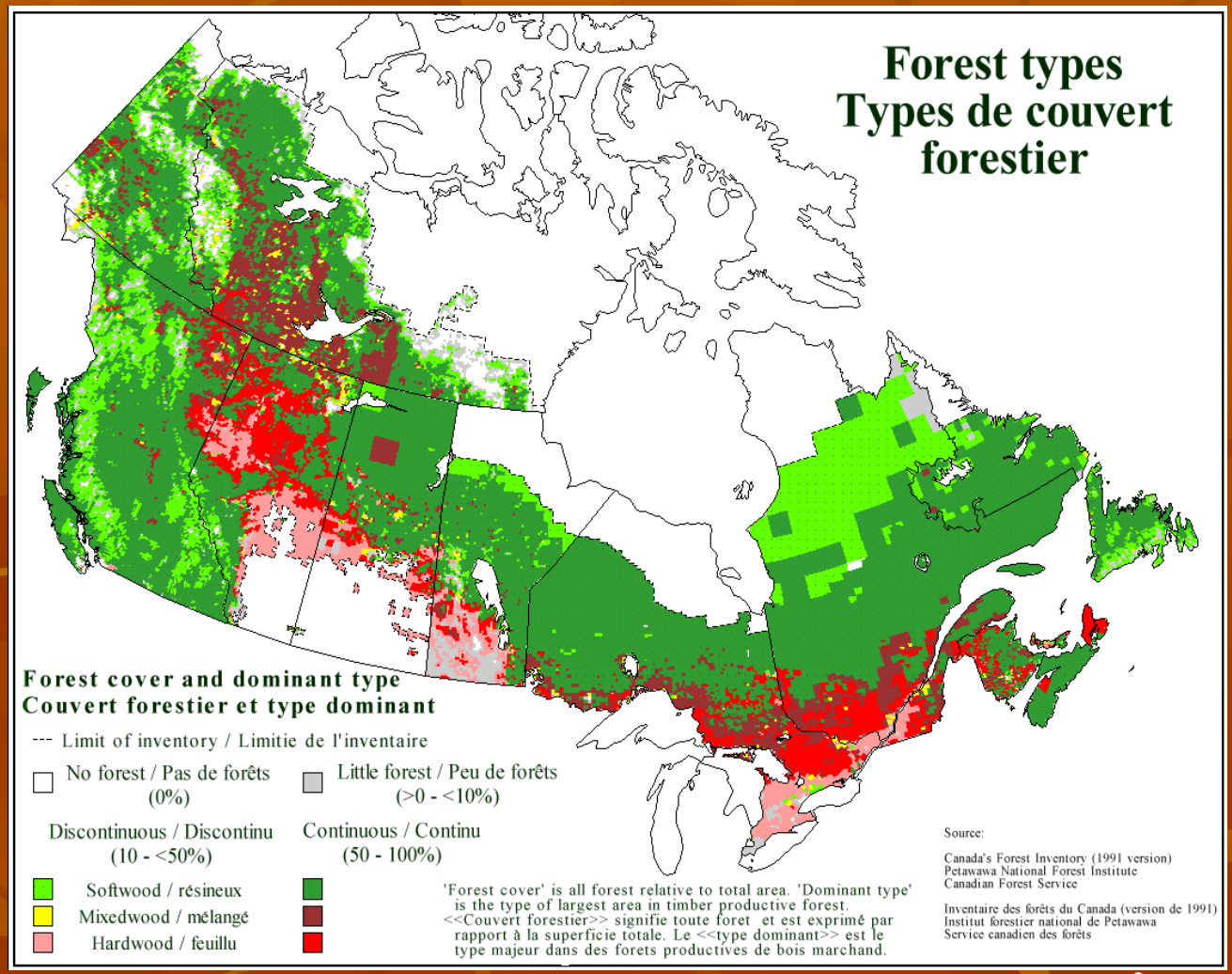
Forest Lands in Canada

- Three Oceans
- 900 mil ha of land (South Africa 121 mil ha)
- 10% of the World's forests
- 50% of the land area is forested
- Rugged -- West
- Canadian Shield and Boreal Forest
- Southern hardwoods
- Temp from -60 C to 40 C



Social Structure

- 10 Provinces plus 3 Territories (North)
- Forested lands are mostly publicly owned (94%)
- Access to much of Canada's forests is limited to air travel
- About 32.5 million people mostly located along the Southern border with the US (South Africa about 43 million people)
- Management is largely a provincial responsibility
- Have professional foresters and biologists

Tourism – 2nd biggest industry

Forestry and Forest Products are the 1st industry in Canada

- Wide diversity across Canada in Forests, Tree sizes, and products produced
- Management is largely "natural"
  - Trees are planted, spaced, fertilized, but naturals come into the stands
    - – rotations (time to harvest)of 60 to 100 years or more – similar to natural disturbance regimes, except for Coastal Forests
  - Multiple objectives – habitat, timber products, non-timber products, tourisms, etc on every stand
  - Intensive management generally only used for specific small land areas near cities (e.g., Christmas trees)

Wide Diversity – West, Pacific Ocean Coastal Forests

- Large trees – up to 2 metres in diameter and 65 m in height
- High site productivity – very lush

Pacific Coastal Forests

Moisture Largely as Rainfall

Wide Diversity – West, Pacific Ocean Coastal Forests

- Sawlogs and peeler logs -- residues used in composite products
- Smaller hardwoods used for pulp
- Some value-added industries (e.g., door frames) and non-timber forest products

Wide Diversity – Interior BC

- 9 species in one stand
- Largely use partial cutting
- Plant seedlings under residual canopy or allow for “naturals”
- Moisture – rain+snow

Rocky Mountains

- Mostly in National Parks – no mining, housing in few towns only, no logging except for fire control/habitat management
- Moisture largely via snowfall

Boreal Forests -- Most of Canada's Forests

Boreal Forest

- Plywood, particle/Oriented Strand Board (OSB), dimension lumber, firewood
- Pulpwood
- Moisture as Snow and Rain

Southeastern Hardwoods

- Furniture wood, dimension lumber, firewood
- Maple Syrup

East Coast – Atlantic Ocean

Rugged Coast with Fierce Winter Storms – largely Boreal Forest

Natural Disturbance by

- Fire– largest impact, particularly in Boreal Forests
- Insects/Disease – outbreaks in some areas
- Windthrow
- Flooding
- Coastal Forests –too wet for fires – largely single tree disturbances

Harvesting

Wildlife

- Predators:
  - Bears: Grizzly, Polar, Black
  - Dogs: Wolves, Coyotes and Foxes
  - Cats: Cougars, Lynx, Bobcats
- Ungulates: Deer, Wapati (elk), caribou (reindeer), Moose, Antelope, Buffalo
- Birds: from hummingbirds to Golden Eagles
- Insects: Many biting insects in the north! Monarch butterflies, large moths.
- Not many introduced species, except for farm animals
- All foresters and forest biologists must manage for timber, wildlife, water, and viewscape

Information Availability

- For many forests is limited to remotely sensed data from airborne and satellite platforms
- Ground data are sparse, with larger concentrations in the south and where timber extraction takes place
- Wildlife surveys – difficult in most areas with tree cover. Extremely difficult in BC due to tree cover and mountainous terrain

Canadian Forest Service

Responsible for providing statistics on the entire forested land base of Canada

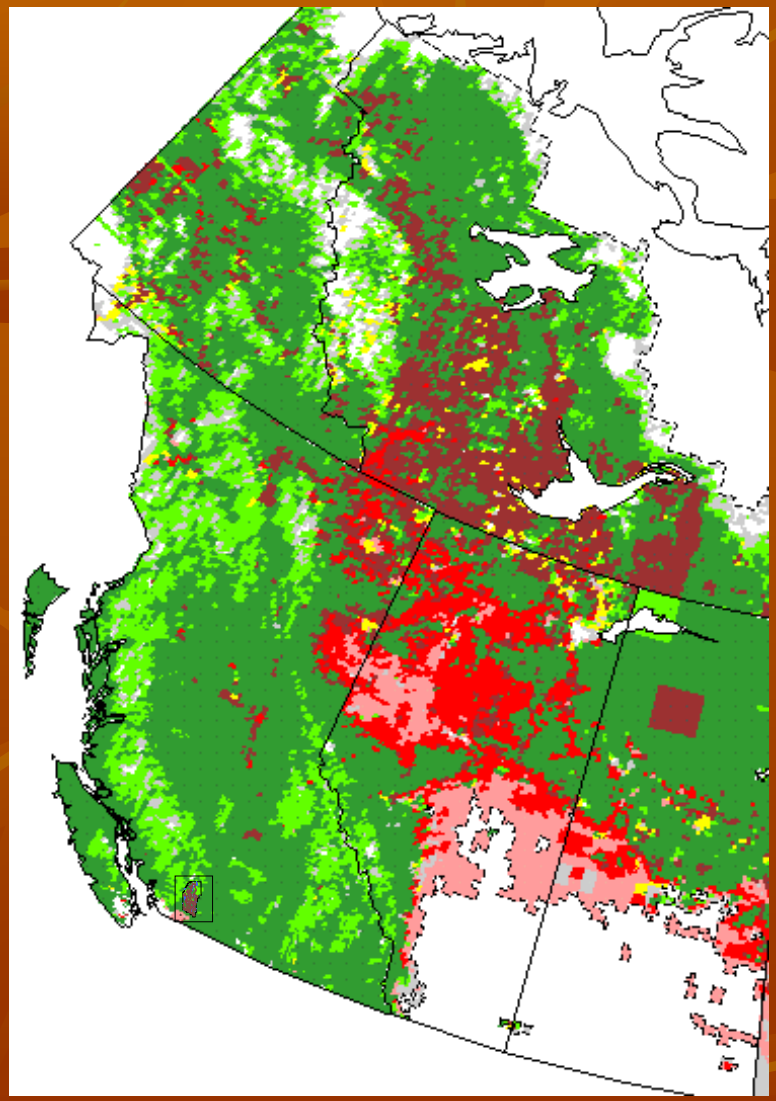
Two methods:

1. Summarize province inventory statistics
   - Province by province statistics on forest and forest industry
2. Proposed: Independent inventory
   - By eco-zone, not by province
   - More accurate for change data

Provinces

- Divided into Management Units
- Inventory done by provincial agency and by forest companies
- Forest Cover Polygons using aerial photography
- Amount and spatial distribution of ground data variable

Linkages Among Data Sources



- For forests in Canada, linkages between spatial maps, data, and forecast models are absolutely essential.

Linkage Issues

- Aerial data – often a complete census of spatial information
- Need ground data for:
  - Detail -- can use these approaches for any ground data, if forecast models are available
  - Localizing models for plausibility
- Difficult to link ground to aerial data
- Using a variety of information sources and estimations methods (e.g., spatial and variable space nearest neighbour methods)

Forestry in Canada -- Summary

- Important to Canadian economy
- Important for tourism, health, conservation of wildlife, water, soils
- Natural management mostly practiced
- Large forested land area – information management is a real challenge

www.forestry.ubc.ca

www.gov.bc.ca/for

www.nrcan.gc.ca/cfs

[www.cia.gov/cia/publications/factbook/geos/sf.html]

www.cws-scf.ec.gc.ca