

Assessing forest resources at the regional level: examining the potential in North America

Source: Adapted from FAO, 2004. *Forest resources assessment*. Secretariat Note. 22nd session of the North American Forest Commission, Veracruz, Mexico, 25–28 October 2004. NAFC/2004/10. Rome.

Regional collaboration not only can help to strengthen the capabilities of individual countries to monitor and assess their forest resources, but also can serve as a bridge between national and global assessments of forest resources.

There is increasing recognition in North America that forest ecosystem inventory and monitoring is vital to the successful implementation of sustainable forest management – for formulating effective land use and conservation policy, valuing forest services and benefits, planning and implementing management activities and following the results over time. This information directly supports reporting and assessment of criteria and indicators for sustainable forest management and serves as a knowledge base for supporting research and development.

The Inventory, Monitoring and Assessment Working Group of the North American Forest Commission is exploring the potential for reporting at the continental level by aggregating national forest inventory data from the commission's three member countries: Canada, Mexico and the United States.

A prerequisite to a North American analysis of forest resources is the development and validation of a common inventory, monitor-

ing and assessment database linked to the individual country databases. Once protocols are established for data sharing and assessment, continent-wide interpretive maps describing the North American forests can be developed.

Differences in measurement and monitoring protocols of the national inventory programmes pose a challenge to the continental approach. The main issue in defining common variables is difference in definitions, particularly in the definition of forest. Threshold parameters such as minimum area, crown closure, stocking or productivity vary, and whether land is classified as forest or other wooded land can depend on a slight shift in threshold parameters.

Analysis of data from the three countries' national forest inventory databases revealed that harmonization (the process of making the various definitions compatible with each other) was possible for the following variables:

- area of land;
- area of forest land and standing volume;
- area of other wooded land;
- area of inland water.

The working group created an integrated, spatially defined forest inventory database based on the national data, using the ecological zones used by FAO in the Global Forest Resources Assessment 2000 (FRA 2000) as a reporting framework. FAO has delineated 20 ecological zones for North America – six tropical, five subtropical, five temperate, three boreal and one polar (Figure 1).

Forest area and volume were further broken down by forest type (coniferous, mixed and broadleaved). Land was classified as publicly or privately owned.

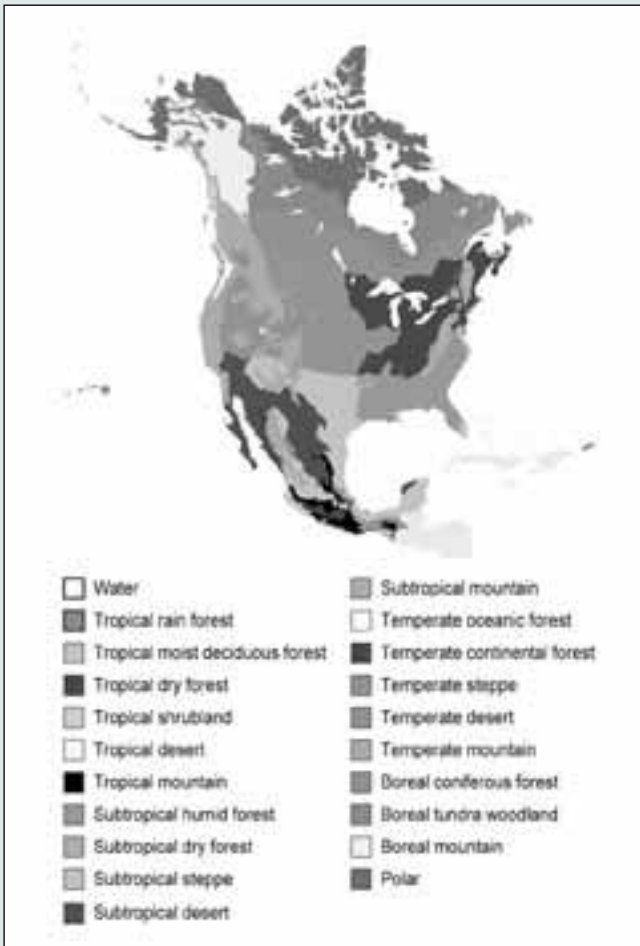
Figure 2 illustrates the distribution of forest area by ecological zone. Figure 3 illustrates the breakdown of forest type by ecological zone grouping.

One drawback was that the boundaries of the FAO ecological zones had some inconsistency with the ecological framework boundaries of the individual countries. Before the results of continental assessments can be widely published, these differences need to be resolved to ensure that each country's official land area is reconciled to the total area. As part of the reconciliation process, unclassified area must be assigned to a land cover category.

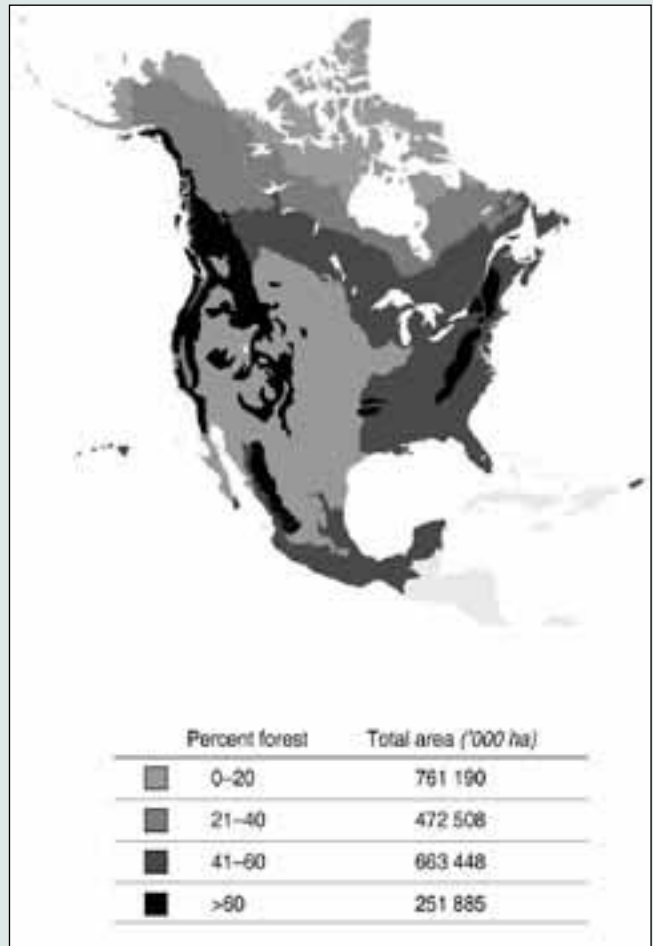
The database being developed could supply information for four of the 15 reporting tables in the FRA update 2005 (see Table). With the harmonization of a few additional variables, the database could be used to report on the tables where data are currently only partial.

Ability of the North American regional database to provide information to support FRA 2005

FRA table	Primary variables	Coverage in NAFC database
Extent of forest and other wooded land	Forest, other wooded land, other wooded land with trees, other land, inland water (thousand ha)	Yes
Ownership of forest and other wooded land	Public, private, other (thousand ha)	Yes
Designated function of forest and other wooded land	Production, protection, conservation, social service, multipurpose (thousand ha)	Partial
Characteristics of forest and other wooded land	Primary, modified natural, seminatural, plantation (productive or protective) (thousand ha)	Partial
Growing stock	Growing stock (total and commercial) (million m ³ overbark)	Yes
Biomass stock	Above-ground, below-ground, dead (million oven-dry metric tonnes)	Partial
Carbon stock	Above-ground, below-ground, dead, litter (million tonnes)	No
Disturbances affecting health and vitality	Fire, insects, disease, other (thousand ha)	No
Diversity of tree species	Native, endangered, critically endangered, vulnerable (number of species)	No
Growing stock composition	Growing stock of ten most common species (million m ³)	Yes
Wood removal	Commercial products, fuelwood (thousand m ³)	No
Value of wood removal	Commercial products, fuelwood (thousand US\$)	No
Non-wood forest product removal	Tonnes by category	No
Value of non-wood forest product removal	Thousand US\$ by category	No
Employment in forestry	Production, services (thousand persons)	No



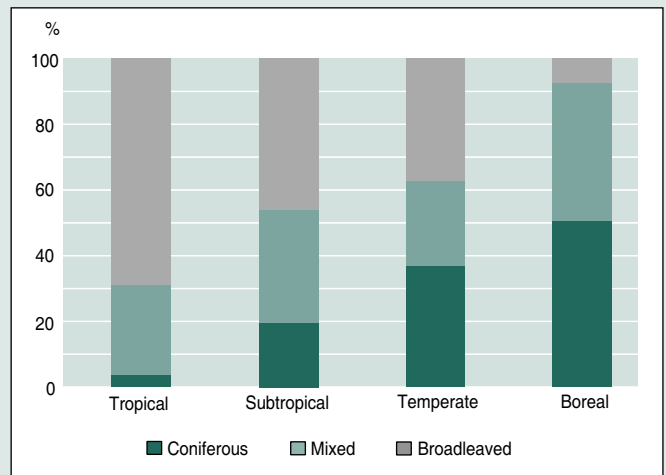
1
FAO ecological zones in the NAFC countries



2
Distribution of forest land in North America by FAO ecological zone

If ancillary data were incorporated into the analysis, it could also be possible to provide continent-level information related to disturbances, diversity of tree species, wood removal, selected non-wood forest products and employment.

All three countries are currently revising their approaches to national forest inventory, which provides an opportunity to pursue a more compatible approach that could support analysis and reporting at the continental level. The regular discussions among the countries have helped shape the national revisions, guiding the three countries towards a common North American framework for inventory and monitoring. This should simplify the compilation of a North American database in the future and facilitate a regional assessment of forest resources.



3
Forest type by ecological zone grouping