



Statistics Canada

www.statcan.gc.ca

Measuring ecosystems and biodiversity and related goods and services

World Bank, WAVES Partnership Meeting

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Outline



- What exists already in Canada and Statistics Canada?
- What doesn't exist?
- Our vision of an ecosystem account
- Statistics Canada's Proposal for Ecosystem Accounts

What exists in Canada ...



- Several case studies in valuation (Edézhzhíe Candidate Protected Area; Boreal Forest by Pembina Institute)
- Ecosystem Valuation Research Inventory (www.evri.ca)
- Ecosystem Status and Trends Report (ESTR) 2010 is first occasional report
- Biodiversity data dispersed but abundant (Federal Biodiversity Information Partnership is looking to convert museum holdings to electronic)
 - Several initiatives to improve monitoring (Earth Observation for Ecosystem Services Initiative; Terrestrial Ecosystems Monitoring)
- Agriculture Canada: maintains agro-environmental indicators and Web Mapping (www.ecozones.ca)
- Natural Resources Canada: maintains www.GeoBase.ca with many relevant indicators and Web mapping services

...and Statistics Canada?



- **What StatCan does *vis à vis* Environment Statistics**
 - 30+ year history and 45 FTEs
 - Conduct nine surveys (business and households)
 - Manage accounts for natural resource stocks (energy, minerals, timber, land, water) and materials and energy flows (GHGs)
 - Produce annual and quarterly pubs (*Human Activity and the Environment, EnviroStats*)
 - Canadian focal point for international classifications and standards via London Group (UN-SEEA), OECD Statistics Committee; World Bank;

What doesn't exist?



- Ecosystem accounts
- Standard ecosystem classifications
- Standard ecosystem services classification
- Web mapping nor “open data” at Statistics Canada
- Central focus for EG&S standards and classifications
- Focus for Canadian valuation research
- Links between current EG&S work and economic statistics...

Our vision of an ecosystem account



1. Spatially-referenced land/water cover data
 - Various times in past and as close to present as possible
 - As detailed as possible (30-50m)
 - Include terrestrial, freshwater, coasts, wetlands and marine ecosystems
 - Classified according to standard for ecosystems
2. Linked to measures of ecosystem quality
 - goods and services
 - Such as air quality, water quality, species diversity, ecosystem productivity, land cover, climate maintenance, pollination, water management
 - Classified according to ecosystem services
3. Methodology and standards for assigning monetary values to areas of various qualities

Our vision of an ecosystem account



- General principles of environmental accounting, in keeping with SEEA:
 - **comprehensive**: include all that needs to be included
 - **coherent**: consistent methodology and data sources over time
 - **include stocks and flows** (opening balance, closing balance)
 - **link to SNA where possible** (wealth, goods, services)

Our vision of an ecosystem account



- Why involve the statistics agency?
 - Existing expertise in natural resource valuation
 - Spatial infrastructure with links to socio-economic information
 - Links to SNA (including I/O) to understand economic values of ecosystem goods and services
 - Facility with standards and classifications
 - e.g., Statistics Canada has internal standard for drainage areas
 - Adherence to statistical quality standards
 - e.g., fitness for use; trends; representivity
 - *Impartial*

Statistics Canada's Proposal for Ecosystem Accounts



- **Seeking “venture capital” for 3-year proof of concept**
- **Objectives**
 - Develop pilot ecosystem accounts at Statistics Canada by:
 - Improving spatial infrastructure
 - Increasing access to biophysical data
 - Conducting research on ecosystem services valuation
- **Principles**
 - Work needs to be horizontal (interdepartmental) and be compatible with government policy objectives
 - Keep in line with emerging international standards and methods

Statistics Canada's Proposal for Ecosystem Accounts



- **What Statistics Canada can do to facilitate measurement of ecosystems goods and services**
 - **Harmonize/standardize existing spatial infrastructure**
 - More detailed spatial data (including remote sensing)
 - Linking land cover with EG&S
 - **Working with stakeholders to standardize and integrate biophysical data into environmental accounts**
 - Developing quality measures linked to ecosystem goods and services
 - Integrate existing data into spatial framework for “place-based” analysis
 - Collaborate with partners on new biophysical data collection and dissemination
 - **Work with stakeholders and international community to expand current valuation methodology to EG&S**

Statistics Canada's Proposal for Ecosystem Accounts



- **Proposed activities (3 years; 5-6 FTEs per year)**
 - Create interdepartmental working group to guide work
 - Create project standard land cover and ecosystem classification
 - Develop approach to data dissemination (likely arm's length web site with web mapping services)
 - Inventory and acquire key biophysical data (related to ecosystem quality)
 - Focus on specific valuation issues such as invasive species, pollination, climate control
 - Develop selected indicators of ecosystem quality
 - Develop project classification of ecosystem services
 - Conduct test assessments of ecosystem quality perhaps based on "distance from reference condition" approach
 - Conduct research on valuation methodology
 - Focus on test areas and selected indicators
 - Collaborate with key stakeholders to ensure policy relevance

Statistics Canada's Proposal for Ecosystem Accounts



■ Challenges?

- **Access to biophysical data; quantity and variety of data available**
 - Land cover → ecosystem classification
 - Biophysical measures of ecosystem quality → ecosystem goods and services
 - Deriving values of services
- **Variety and number of players**
 - Environment Canada, Agriculture Canada, Fisheries and Oceans, Natural Resources Canada, Health Canada
 - Eventually provinces, municipalities
- **Need for local data**
 - May conflict with need for confidentiality
 - May affect data quality
- **Defining outputs**
 - Indicators, databases, maps, publications
- **Continued funding**



- Thank you!
- Comments?
- Questions?
- Suggestions?