

Canadian Experience Calculating GBF headline indicators A.2 & B.1

Dr. Jessica Andrews,
Census of Environment,
Statistics Canada



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Institutional Arrangements

- Global Biodiversity Framework (GBF) response led by Canadian Wildlife Service, Environment and Climate Change Canada
 - National Biodiversity Strategy Action Plan (NBSAP)
 - Domestic Biodiversity Monitoring Framework (DBMF)
- Census of Environment (CoE), Statistics Canada, is responsible for the following indicators:
 - Headline
 - A2 Extent of natural ecosystems
 - B1 Ecosystem services
 - 12.1 Urban green and blue spaces for public use
 - Domestic
 - Value of commercial provisioning services
- Connected to partner departments through MOU and collaborative work

Status of A2

- Ocean ecosystems
 - Version 1– complete but known data gaps
 - Published data table and raster file (2023)
 - Monthly sea ice extent (1979-2024)
- Terrestrial ecosystems
 - Land cover
 - Published design-based estimates and raster file (2020)
 - Working towards land cover change and future year snapshot
 - Ecosystems
 - Classification system nearing finalization
 - Collaborative work with CWS on improving mapping of Canadian ecological geographies and vegetation classification

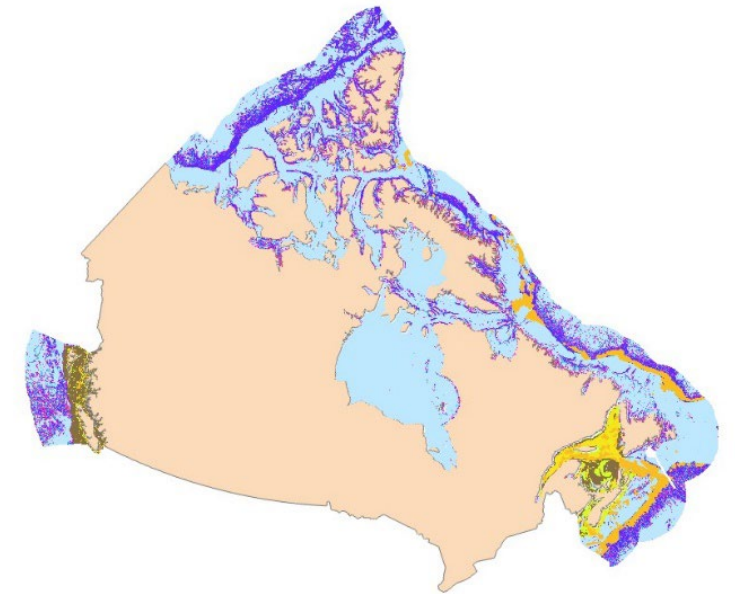
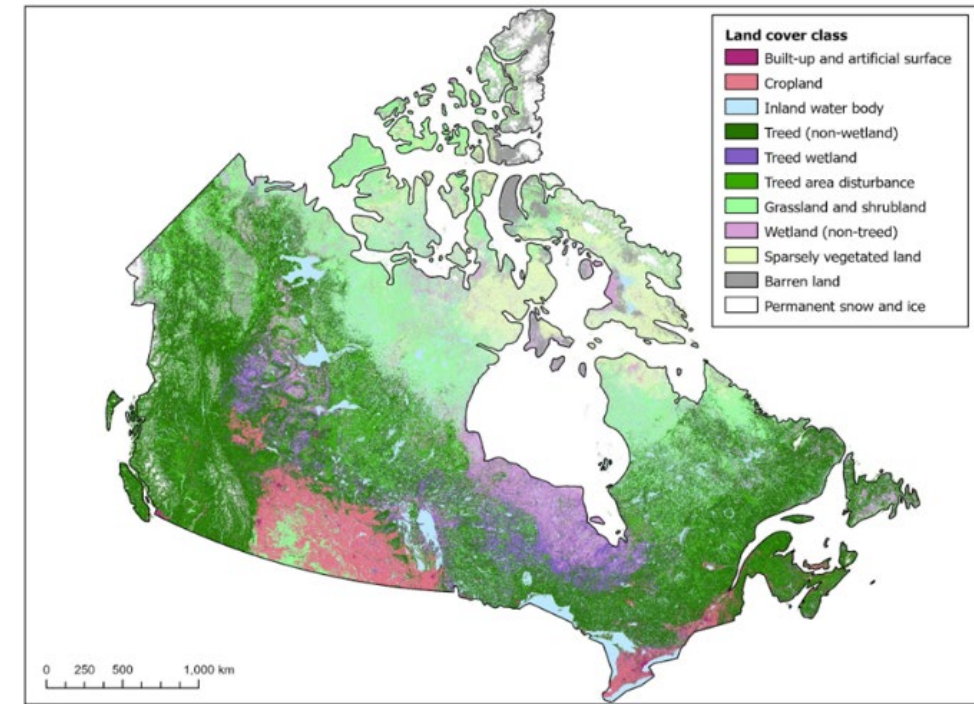
Status of B1

Services combined to a single indicator using Geometric mean of trends from 2016 to 2021

- Conserved area (non use)
- Ocean and coastal ecosystems
 - Selected physical services of Salt marsh- coastal protection, climate regulation, recreation
- Terrestrial Ecosystems
 - Water yield
 - Total provisioning services(biomass)
 - Agricultural including grazing biomass
 - Forestry
 - Freshwater
 - Marine

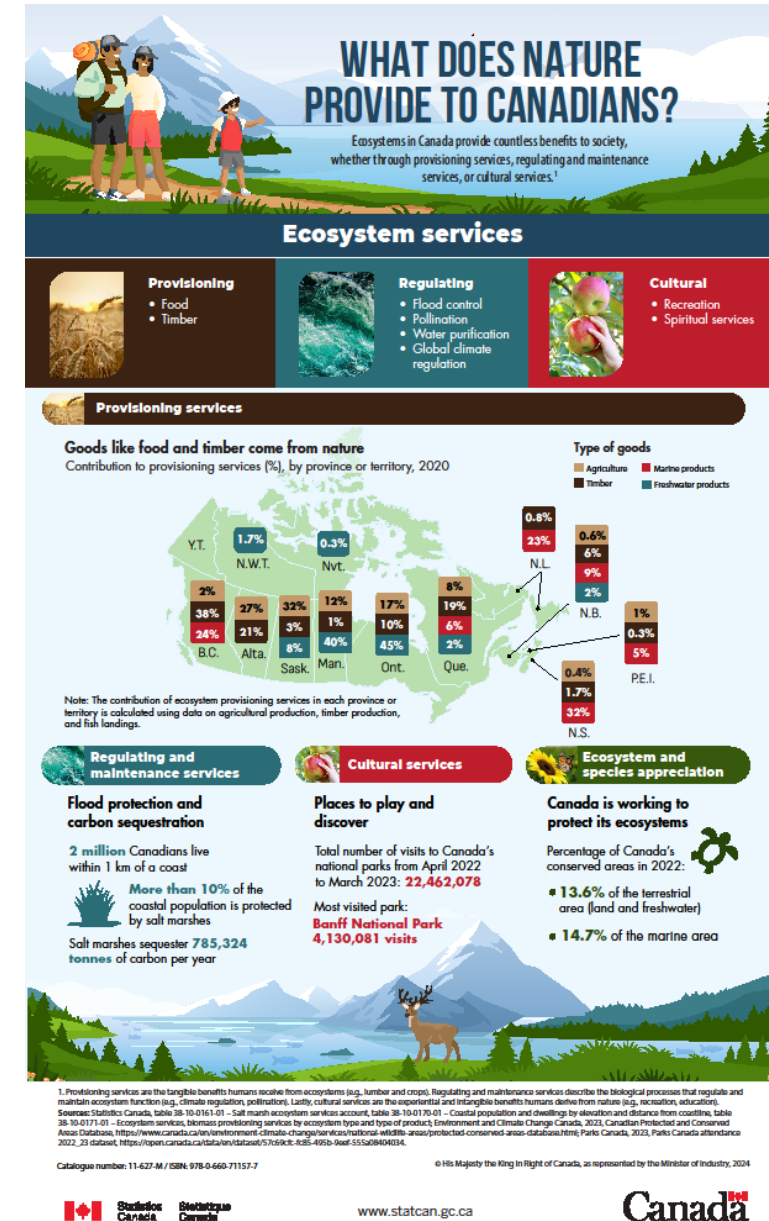
Key results A.2

- Raster data at 30m covering all of Canadian land territory(land cover) and ocean territory(ecosystems following IUCN Global Ecosystem typology)
- Monthly sea ice extent estimates (1979-2025)
- Statistical design-based methods to create estimates of 10 land cover classes across Canada with confidence estimates (random selection of sites with image delineation)
- Work progressing on building terrestrial ecosystem accounts as well as change accounts
 - Census years estimates of 4 agroecosystems have been published using data from Census of Agriculture



Key results B.1

- Ocean and coastal ecosystems (ocean waters, seagrass, saltmarsh, kelp)
 - Estimates for 5 services (physical values)
 - E.g., Modelling of carbon sequestration for phytoplankton
 - Estimates for 3 services (monetary values)
- Salt marsh - estimate of coastal protection service
- Estimates of fresh water yield (30 year averages, annual and seasonal estimates and annual rasters for Southern Canada)
- National accounts for provisioning (biomass) services, by ecosystem type



Challenges for A2 and B1

A.2 - Extent

- Data resolution, quality and conflicting sources
- Data gaps both in coverage and time series
- Collaboration
 - Many partners
 - between indicators (namely A1&A2)

B.1 - Services

- Adapting models to national scale for a large country
- Developing suitable services for B1
 - Guidance on preferred methods would be helpful
 - Not all services suited to Target 11 goal of “Restoring, maintaining and enhancing nature’s contributions to people”
- Achieving equitable distribution of service estimates across ecosystems to avoid bias

Lessons learned A2 and B.1

A.2 - Extent

- Valuable to have a common grid system for all files - aids in consistency and product use
- Design based work produces unbiased estimates with accuracy measures, adding confidence in the work
- Collaboration is important, but must also stay true to your own priorities

• B.1 - Services

- Need to accept starting with proxies and then making incremental improvements
- Good extent data necessary for most services (with possible exception of provisioning services)
- Use what you have- before starting ambitious/costly modelling exercises what is achievable from open data/inhouse data

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