Indicator 7.54:

Monitoring, assessment, and reporting on progress towards sustainable management of forests

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What is the indicator and why is it important?

Indicator 7.54 assesses the availability and status of the data used to report on the Montréal Process (MP) Criteria and Indicators (C&I) for Sustainable Forest Management. It also describes some of the major data sources and assessment processes that provide information on forest sustainability in the United States.

Regular and rigorous monitoring, assessment, and reporting can provide up-to-date and reliable information on the state of and trends in forests at multiple scales. This is essential for informed decision making, generating public and political awareness of issues affecting forests, and developing policies that underpin the sustainable management of forests. Public discussion and decisions about forests also benefit from comprehensive, current, sound, and readily available data. Information regarding the frequency, coverage, and reliability of forest-related data is important for understanding and improving the rigor and representativeness of forest-related data, as well as identifying and correcting overlaps and gaps.

What does the indicator show?

Various laws and regulations govern forest-related data collection, analysis, and release in the United States. For example, the Federal Renewable Resources Planning Act of 1974 mandates data collection and analysis to monitor the trends in U.S. forest conditions. The Federal Forest Inventory and Analysis program of the U.S. Department of Agriculture (USDA), Forest Service measures and monitors the status of and trends in forest area, composition, health, disturbance, production, harvest, utilization, ownership, and other data through a continuous forest census that produces data annually. The USDA Forest Service also collects and maintains data on forest recreation, non-timber forest products, and other forest-related data. The National Resources Inventory, conducted by the USDA Natural Resources Conservation Service, is a periodic assessment of the status and changing conditions of the soil, water, and related resources on private land in the United States. The USDA Foreign Agriculture Service tracks forest commodities and trade data. The U.S. Census Bureau and the Department of Commerce collect and provide critical data on socioeconomic dynamics directly and indirectly related to forests. Numerous other programs and initiatives provide forest-related information at national and subnational levels through continuous data collection, periodic collections, and point-in-time studies.

State governments frequently conduct regular forest-related data collection and assessment, as do public and private universities. Private-sector forestry firms provide various forest production and trade statistics to forest industry trade associations, which provide these statistics to the public (usually for a fee). Private-sector firms, landowners, and nongovernmental organizations also contribute to forest monitoring, assessment, and reporting, often in cooperation with Federal, State, and university partners. Additionally, certified forestry firms and organizations report some management data and typically most of their management planning information. For example, management plans for firms certified by Forest Stewardship Council are open to the public and generally available from auditors' internet sites; the Sustainable Forestry Initiative offers a summary of the certification audits for forest management certificate holders on its site.

To assess the data available for addressing the Montreal Process C&I, in 2018 we queried Forest Service lead authors responsible for reporting on specific Criteria or Indicators, asking them a set of questions about current data quality and improvements relative to 2010, the last

time a full report using the Montréal Process C&I was produced. The responses are summarized in the table below (table 54-1). Though the rankings reported may vary somewhat in meaning depending on the indicator and type of data used, together they provide a fairly comprehensive assessment of data availability and robustness for examining forest sustainability in the United States.

Although some indicators have a broad suite of current data that are national in scope and collected frequently (e.g., several indicators under C1, C2, C5, and C6), the majority do not. In some cases, this results from a lack of systematic or comprehensive data collection (e.g., Indicators 7.45 and 7.53), in others, the indicator in question may not be amenable to a concise, quantified analysis and presentation, and systematic data collection activities would likely not be possible even if sufficient resources were available (e.g., Indicators 6.38, 6.44, and 7.46). Often in these cases, proxy data have been used to provide some information to address the indicator. Certain proxy data series may have excellent characteristics (e.g., high reporting frequency and national consistency), but their applicability in measuring the underlying indicator varies depending on the indicator in question, and ultimately pose challenges for long-term sustainability reporting. Overall, research, monitoring, and assessment of a wide range of data on forests and associated conditions and trends in the United States have remained stable, if not improved, since 2010, as reflected in Table 54.1.

What has changed since 2010?

Since collection of information for the Montréal Process began in the late 1990s, some improvements have been made in the coverage, currentness, and collection frequency of forest-related information. Data available for analyzing the current set of 54 Montréal Process indicators ranged from anecdotal information to one-time studies through to complete up-to-date coverage (table 54.1). Twenty-four of the 54 indicators showed improvements in data coverage, currentness, and/or collection frequency compared to previous reports. For example, data on forest area and percent by ecosystem type, age class, ownership, and other categories (Indicator 1.01) have improved with enhancements to Forest Inventory and Analysis (FIA) data. Likewise, data on the area and percent of forest in protected areas by different categories (Indicator 1.02) have improved with new data from the Conservation Biology Institute that expanded the utility of FIA data used in previous reports to permit the coverage of additional vegetation classes. Improvements in the analysis of the area and percent of forest land with significant soil degradation (Indicator 4.19) also benefited from the inclusion of new information on critical loads and some FIA soil resampling since the previous report. Two indicators (7.46 and 7.52) were entirely new and the remaining 30 indicators had not changed significantly in terms of their data coverage, currentness, and/or collection frequency. No indicator was considered to have declined in terms of these data characteristics. Overall among the improvements, more gains were made in the biophysical indicators than in the socioeconomic or institutional indicators.

Table 54.1—Status of and Trends in MP Indicator Data in the United States, 2018

MP Criteria and Indicators	Coverage	Current-ness	Frequency	Changes since 2010
C1. Conservation of biological diversity				
1.01 Area and percent of forest by forest ecosystem type, successional stage, age class, and forest ownership or tenure	1	1	1	I
1.02 Area and percent of forest in protected areas by forest ecosystem type, and by age class or successional stage	1	1	1	I
1.03 Fragmentation of forests	1	1	2	I
1.04 Number of native forest-associated species	1	1	1	I
1.05 Number of native forest-associated species at risk, as determined by legislation or scientific assessment	1	1	1	I
1.06 Status of onsite and offsite efforts focused on conservation of species diversity	1	1	1	I
1.07 Number and geographic distribution of forest-associated species at risk of losing genetic variation and locally adapted genotypes	1	1	1	I
1.08 Population levels of selected representative forest-associated species to describe genetic diversity	1	1	1	S
1.09 Status of onsite and offsite efforts focused on conservation of genetic diversity	1	1	1	S
C2. Maintenance of productive capacity of forest ecosystems				
2.10 Area and percent of forest land and net area of forest land available for wood production	1	1	1	I
2.11 Total growing stock and annual increment of both merchantable and nonmerchantable tree species in forests available for wood production	1	1	1	I
2.12 Area, percent and growing stock of plantations of native and exotic species	1	1	1	I
2.13 Annual harvest of wood products by volume and as a percentage of net growth or sustained yield	1	1	1	I
2.14 Annual harvest of nonwood forest products	3	1	3	S
C3. Maintenance of ecosystem health and vitality				
3.15 Area and percent of forest affected by biotic processes and agents (e.g., insects, disease, invasive alien species) beyond reference conditions	2	1	1	S
3.16 Area and percent of forest affected by abiotic agents (eg., fire, storm, land clearance) beyond reference conditions	2	1	1	S
C4. Conservation and maintenance of soil and water resources				
4.17 Area and percent of forest whose designation or land management focus is the protection of soil or water resources	2	2	2	S

4.18 Proportion of forest management activities that meet best management practices or other relevant legislation to protect soil resources	2	1	1	I
4.19 Area and percent of forest land with significant soil degradation	2	2	2	I
4.20 Proportion of forest management activities that meet best management practices, or other relevant legislation, to protect water-related resources	2	1	1	I
4.21 Area and percent of water bodies, or stream length, in forest areas with significant change in physical, chemical, or biological properties from reference conditions	2	1	2	I
C5. Maintenance of forest contribution to global carbon cycles				
5.22 Total forest ecosystem carbon pools and fluxes	1	1	1	I
5.23 Total forest product carbon pools and fluxes	1	1	1	S
5.24 Avoided fossil fuel carbon emissions by using forest biomass for energy	1	1	1	I
C6. Maintenance and enhancement of long-term multiple socioeconomic benefits to meet the needs of societies				
6.25 Value and volume of wood and wood products production, including primary and secondary processing	1	1	1	S
6.26 Value of nonwood forest products produced or collected	2	2	3	S
6.27 Revenue from forest-based environmental services	2	1	3	I
6.28 Total and per capita consumption of wood and wood products in roundwood equivalents	1	1	1	S
6.29 Total and per capita consumption of nonwood products	2	2	3	S
6.30 Value and volume in roundwood equivalents of exports and imports of wood products	2	2	2	S
6.31 Value of exports and imports of nonwood products	2	2	3	S
6.32 Exports as a share of wood and wood products production and imports as a share of wood and wood products consumption	1	1	1	S
6.33 Recovery or recycling of forest products as a percent of total forest products consumption	1	1	1	S
6.34 Value of capital investment and annual expenditure in forest management, wood and nonwood product industries, forest-based environmental services, recreation, and tourism	1	1	3	S
6.35 Annual investment and expenditure in forest-related research, extension and development, and education	2	2	2	S
6.36 Employment in the forest products sector	1	1	1	S
6.37 Average wage rates, annual average income, and annual injury rates in major forest employment categories	1	1	1	S
6.38 The resilience of forest-dependent communities	1	1	3	I
6.39 Area and percent of forests used for subsistence purposes	3	3	3	S
6.40 Distribution of revenues derived from forest management	3	3	3	S
6.41 Area and percent of forests available and managed for public recreation and tourism	1	2	3	S
6.42 Number, type, and geographic distribution of visits attributed to recreation and tourism and related to facilities available	2	2	3	S

6.43 Area and percent of forests managed primarily to protect the range of cultural, social, and spiritual needs and values	2	2	2	S
6.44 The importance of forests to people	3	3	3	S
C7. Legal, institutional, and economic framework for forest conservation and sustainable management				
7.45 Legislation and policies supporting the sustainable management of forests	2	1	3	S
7.46 Cross sectoral policy and program coordination	2	1	3	N
7.47 Taxation and other economic strategies that affect the sustainable management of forests	1	1	3	S
7.48 Clarity and security of land and resource tenure and property rights	2	1	3	I
7.49 Enforcement of laws related to forests	2	1	3	I
7.50 Programs, services and other resources supporting the sustainable management of forests	2	1	3	I
7.51 Development and application of research and technologies for the sustainable management of forests	1	1	2	I
7.52 Partnerships to support the sustainable management of forests	2	1	3	N
7.53 Public participation and conflict resolution in forest-related decision making	1	1	3	I
7.54 Monitoring, assessment and reporting on progress towards sustainable management of forests	1	1	2	S

Coverage: 1 = national (≥90%); 2 = some national and/or regional; 3 = varies or incomplete; 4 = modelled.
Currentness: 1 ≥ 2010; 2 = 1995–2010; 3 = ≤ 1995.
Frequency (of data collection/reporting): 1 = Annual to < 5yr periodic; 2 = ≥ 5yr periodic; 3 = one-time or incomplete.
Changes since 2010 report: I = improvements in data adequacy; S = no change/the same; D = declines in data adequacy; N = indicator is new to the framework/report.