Census of Environment: Urban greenness, 2023

Released at 8:30 a.m. Eastern time in The Daily, Wednesday, November 15, 2023

Canadian cities and towns were a little greener in summer 2023 compared with one year earlier, mostly due to more rain in Ontario.

"Urban greenness" is a measure that assesses the condition and health of an urban landscape. Vegetation contributes to more livable, beautiful communities by helping to clean the air, moderate the local climate, control water flow and provide habitats for wildlife, including mammals, insects and birds.

In summer 2023, just under three-quarters (74.1%) of the land area of 1,016 population centres across Canada was classed as green, up slightly from 72.1% in summer 2022.

Nationally in 2023, Atlantic Canada had the greenest cities and towns, while the Prairies had the least green cities and towns, reflecting geographical climate patterns and their effects on natural vegetation and tree cover.

Chart 1
Urban greenness, all population centres, by province, 2023
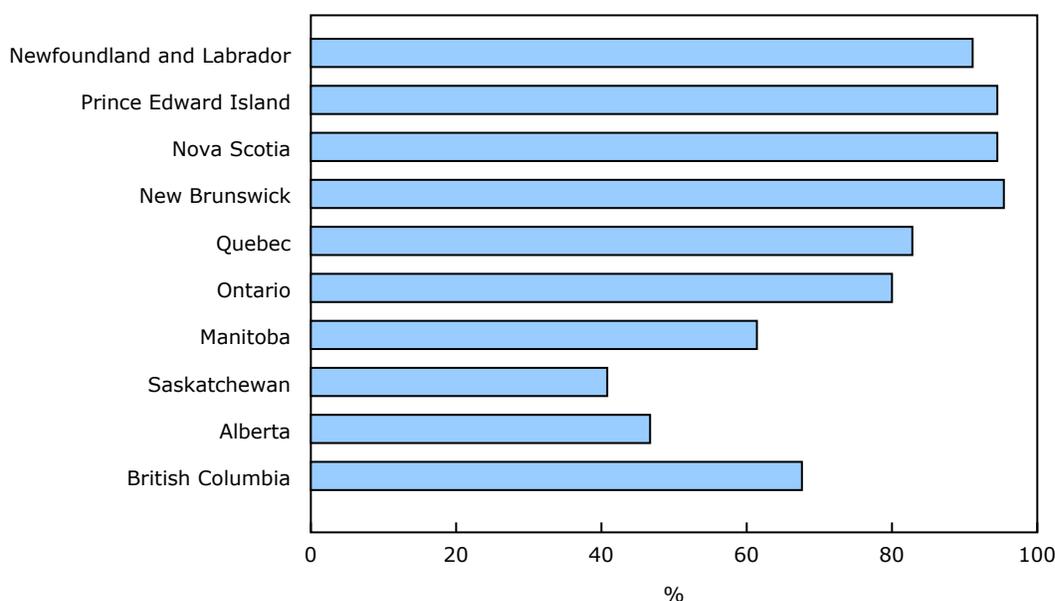
Source(s): Table 38-10-0158-01.

According to satellite imagery analysis, Kanata, Ontario (98.2%); Saint-Jérôme, Quebec (95.4%); Gatineau, Quebec (92.8%); St. John's, Newfoundland and Labrador (91.9%); and Kingston, Ontario (91.5%), were the greenest large urban population centres in terms of vegetation in summer 2023.

Cities in Ontario are greener in 2023 due to more rain, while those in the Prairies are parched

Just over two-thirds (68.1%) of the land area of Canada's large urban population centres were deemed green in 2023, up from 65.3% in 2022. Most of the increase occurred in Ontario, with their average greenness score rising 10.7 percentage points from one year earlier to 73.2% in 2023.

Southern Ontario experienced abnormally dry to moderate drought conditions in summer 2022, with a return to normal climate conditions in 2023. This annual variation highlights the association between vegetation condition and summer rain.

Year over year, urban greenness fell in 10 of the 11 largest cities in the western provinces, with Kelowna (-8.5 percentage points to 46.4%) showing the largest drop. Edmonton's urban greenness score rose 4.7 percentage points to 53.8% in 2023.

Compared with other regions of Canada, urban greenness was little changed in the largest cities of Atlantic Canada and of Quebec from one year earlier.

Urban greenness has declined since the beginning of the millennium

Overall, the long-term trend in urban greenness in Canada decreased from 2000 to 2023. This trend is partly attributable to the ongoing growth of settled areas on the periphery of Canadian towns and cities.

Comparing the most recent five-year period (2019 to 2023) with the baseline period (2000 to 2004) shows that average urban greenness has fallen by 7.8 percentage points nationally.

Urban greenness declined in every province and every major urban area over this period, with the largest drops being in Canada's large urban population centres (-10.2 percentage points from the 2000 to 2004 average to the current five-year average).

Table 1
Urban greenness, large urban population centres, top five largest centres

	Average greenness 2000 to 2004	Average greenness 2019 to 2023	Difference
	%		percentage point change
Toronto, Ontario	73.0	61.7	-11.3
Montréal, Quebec	78.5	69.5	-9.0
Vancouver, British Columbia	82.6	68.0	-14.6
Calgary, Alberta	54.1	37.1	-17.0
Edmonton, Alberta	63.0	52.7	-10.3

Source(s): Table **38-10-0158-01**.

Table 2
Urban greenness, large urban population centres, five largest differences over time

	Average greenness, 2000 to 2004	Average greenness, 2019 to 2023	Difference
	%		percentage point change
Milton, Ontario	79.9	47.4	-32.5
Winnipeg, Manitoba	66.0	42.8	-23.2
Kelowna, British Columbia	72.3	53.0	-19.3
Calgary, Alberta	54.1	37.1	-17.0
Vancouver, British Columbia	82.6	68.0	-14.6

Source(s): Table **38-10-0158-01**.

Note to readers

Data for two urban greenness measures by population centre are now available from 2000 to 2023 in table 38-10-0158-01. These measures provide information on the condition of urban ecosystems as part of Statistics Canada's Census of Environment program.

Both measures were computed from the Normalized Difference Vegetation Index (NDVI). Weekly NDVI images from satellite imagery from the moderate resolution imaging spectroradiometer (MODIS) during peak summer conditions (Julian weeks 26 to 34, approximately late-June to late-August) were averaged to provide a measure of vegetation condition for each year for the same physical area using the 2021 population centre boundary to ensure consistency. Population centres have a population of at least 1,000 and a population density of 400 people or more per square kilometre, based on population counts from the Census of Population.

The average NDVI is the average of all pixel NDVI values. The urban "green" class defined in this analysis corresponds to areas with an average NDVI greater than or equal to 0.5, representing areas that are predominantly vegetated. Areas with average NDVI values less than 0.5 are considered "grey" and are largely non-vegetated, though patches of grass, shrubs, crops or other unhealthy/poor condition vegetation will be included. Water pixels were excluded from the analysis.

Long-term and temporary changes in greenness can be linked to urbanization processes, including urban expansion and densification, as well as to the addition or maturing of vegetation and to natural factors such as drought, fire, pests or disease.

Statistics Canada's Census of Environment program reports on ecosystems in Canada, providing information to help Canadians make evidence-based decisions to protect and enhance the environment. The program follows the internationally accepted environmental-economic standard for producing information on ecosystems' extent, their condition and the services they provide.

For more information, see "Canadian System of Environmental-Economic Accounting – Ecosystem Accounts (5331)."

Available tables: table 38-10-0158-01.

Definitions, data sources and methods: survey number 5331.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; **infostats@statcan.gc.ca**) or Media Relations (**statcan.mediahotline-ligneinfomedias.statcan@statcan.gc.ca**).