

Facts and Figures

Municipalities	Toronto, York, Markham
Tributaries	West Highland, East Highland, Main Highland, Centennial Creek
Length of Major Tributaries (km)	West Highland – 19, East Highland – 12, Main Highland – 8, Centennial Creek – 6
Mean Stream Flow (mouth)	1.1 m ³ /sec
Area (km ²)	102
Population (2011)	415,265
Land Use	Urban – 100%
Physiographic Regions	Iroquois Plain, Peel Plain and South Slope
Natural Cover	11% of the watershed has Natural Cover: Forest – 6%, Meadow – 5%, Successional – 0%, and Wetland – 0%
Native Plant & Animal Species	Plants – 198, Fish – 17, Birds – 63, Amphibians – 5, Mammals – 13, Reptiles – 1. Of these, 52 are considered Species of Regional Conservation Concern.



What We Are Doing

- TRCA, working with local residents, has developed a series of Neighbourhood Greening Plans for the Morningside Park, Milliken Park and Cedarbrook Park communities. These plans identify opportunities to better manage stormwater, expand and reconnect isolated patches of natural habitat, and restore the urban forest.
- TRCA, the City of Toronto, Ontario Hydro One and the Rural Lambton Stewardship Network are building the Scarborough Butterfly Trail, a 16 ha meadow restoration project in the Gatineau Hydro Corridor, which will improve habitat conditions in the watershed.
- The City of Toronto, under its Highland Creek Geomorphic Systems Master Implementation Plan, is undertaking a number of major stream restoration projects to minimize erosion and stop potential damage to the sanitary and storm sewers found beneath the creek. A meandering creek planted with trees, shrubs and aquatic vegetation along its banks is better able to withstand the heavy flows following storms or melting snow.
- TRCA is working with community partners, the City of Toronto and residents, in implementing low impact development projects — such as rain gardens, rain barrels and permeable parking lots that allow rainwater to seep into the soil — to reduce rainwater run-off and protect water quality in our streams.
- TRCA and the City of Toronto are developing a Greening Strategy for the Highland Creek to provide a strategic restoration action plan to enhance the Highland Creek valley system and overall watershed function.
- Urban forest studies have been completed for the cities of Markham and Toronto; these studies have been completed through the collaborative efforts of TRCA, regional and local municipalities and neighbouring Conservation Authorities. The City of Toronto has also developed a Strategic Urban Forest Management Plan. Collectively these documents will provide strategic direction for sustaining and expanding the urban forest.

What You Can Do

- **Divert** your downspouts away from paved areas and install a rain barrel to capture and reuse the rainwater that falls on your roof. This reduces run-off to sewers, prevents flooding and saves money on your water bill.
- **Reduce** or eliminate the use of salt, pesticides and fertilizers, which contaminate rivers, ponds and groundwater supplies.
- **Volunteer** for community tree plantings, litter pick-ups or other stewardship events. Register for a volunteer opportunity at: www.trcastewardshipevents.ca
- **Join** the Highland Creek Green Team—a group of motivated residents working to implement greening projects identified in the Neighbourhood Greening Plans. More information is available on the Highland Creek webpage listed below.

Donate to The Living City Foundation to support programs and initiatives in the Highland Creek watershed at www.thelivingcity.org

visit www.trca.on.ca/highland and subscribe to *Highland Highlights Newsletter*

Join us on Facebook
www.facebook.com/HighlandCreekGreenCommunity

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Highland Creek

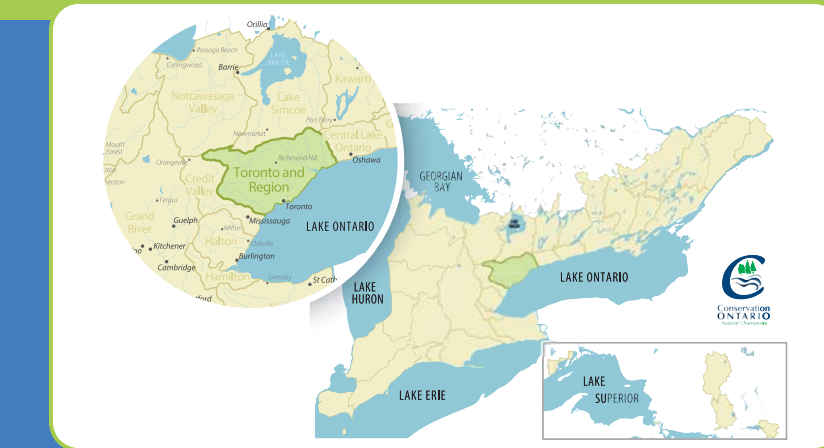
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Highland Creek Watershed Report Card 2013



Where We Are



We are one of 36 Conservation Authorities across Ontario under the umbrella organization of Conservation Ontario.

What Does this Report Card Measure?



Surface Water Quality



Forest Conditions



Groundwater Quality



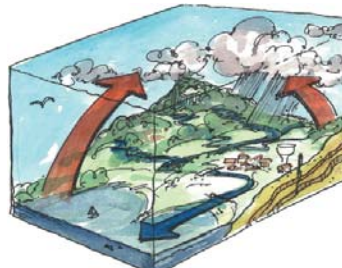
Stormwater Management

Why Measure?

Measuring helps us better understand our watersheds. It helps us to focus our efforts where they are needed most and to track the progress made. It also helps us to identify ecologically important areas that require protection or enhancement.

What is a Watershed?

A watershed is the area of land that catches rain and snow, which drains or seeps into a marsh, creek, river, lake or groundwater. Watersheds are the collectors, filters, conveyers and storage compartments of our fresh water supply.



Grading

A	Excellent
B	Good
C	Fair
D	Poor
F	Very Poor

The standards used in this Report Card were developed by Conservation Authorities to ensure consistent reporting across the Province of Ontario. They are intended to provide watershed residents with the information needed to protect, enhance and improve the precious natural resources that surround us.

Toronto and Region Conservation (TRCA) has prepared this Watershed Report Card on the state of forests, surface water, groundwater and stormwater conditions.



About the Indicators

This Report Card provides a snapshot of some environmental conditions in the Highland Creek watershed.

Monitoring, measuring and reporting helps us better understand the watershed, the progress we've made in protecting it and the threats to its future health. Tracking the environmental indicators used in this Report Card provides watershed residents and the general public with the information needed to protect, restore and improve the precious natural resources within our watersheds. Where possible, an arrow is included alongside grades to show whether conditions are improving, getting worse, or stable.

What Does this Report Card Measure?

Surface Water Quality

Total Phosphorous – High levels can trigger blooms of algae that choke waterways with plant life and deplete oxygen levels in watercourses.

E. coli Bacteria – Indicate the presence of untreated human or animal waste.

Benthic Macroinvertebrates (BMI) – Bottom-dwelling stream insect larvae, snails, crayfish and clams are sensitive to many pollutants. The presence or absence of certain invertebrate species reflects the water quality conditions.

Forest Conditions

% Forest Cover – Woodlands absorb run-off, filter out pollutants and increase biodiversity. They also help reduce the impacts of climate change.

% Forest Interior – Large blocks of forest cover provide homes for many sensitive species of birds and other animals.

% Riparian Zone Forested – Vegetation along watercourses keeps the water cool, prevents erosion and provides homes for many species.

Groundwater Quality

Nitrate and Nitrite – These contaminants come from agricultural manure, fertilizers and leaky septic systems, and may indicate a possible health threat.

Chloride – High chloride levels indicate road salt may be reaching groundwater.

Stormwater Management

% of Developed Area with Stormwater Controls – Systems that manage the quantity and quality of stormwater run-off generated by our communities to protect watercourses. Stormwater management consists of practices that slow down, hold and reuse water.

Grading

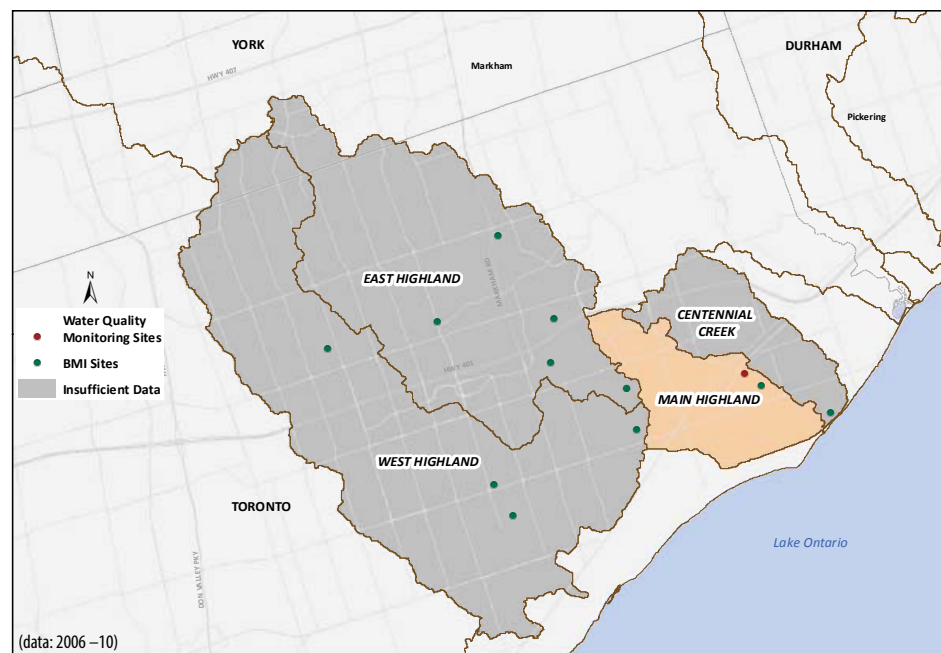
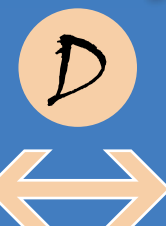
A	Excellent
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Surface Water Quality

Indicators

- Total Phosphorous
- E. coli Bacteria
- Benthic Macroinvertebrates (BMI)



The Highland Creek watershed receives an overall surface water quality grade of "Poor" or "D". Due to insufficient data, only the Main Highland is graded for water quality ("D").

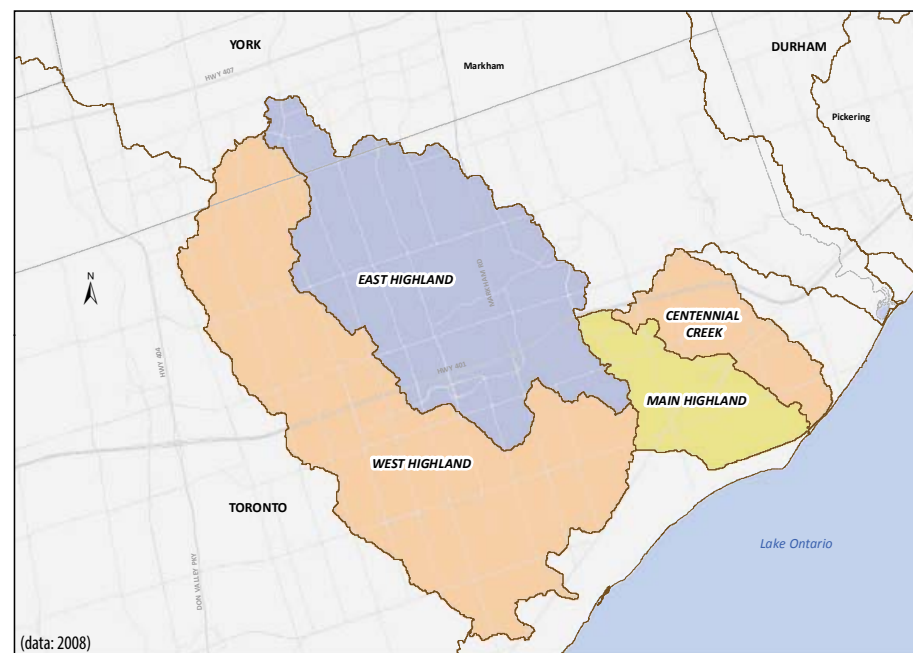
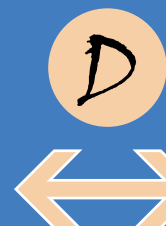
The upper reaches of the Highland have been almost entirely channelized — straightened and encased in concrete. The lack of streambank vegetation and natural cover, particularly in the upper reaches of the watershed, means that rainwater and melting snow flow directly into the watercourse. As a result, two of the three water quality indicators (BMI and E. coli) receive a "F" grade, while phosphorus receives a "C." Long-term data suggests that BMI and phosphorous levels have not changed significantly since 2001. A number of restoration projects are underway to restore and improve streambank vegetation.



Forest Conditions

Indicators

- % Forest Cover
- % Forest Interior
- % Riparian Zone Forested



Forest conditions in the Highland Creek watershed are generally considered to be "Poor," receiving a "D" grade.

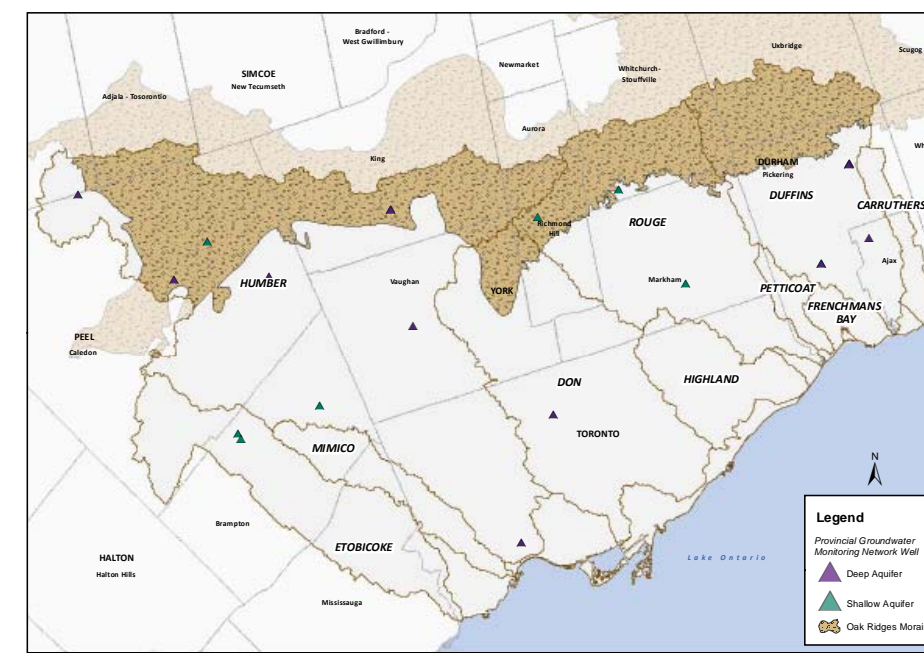
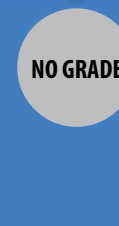
Today, approximately 6% of the watershed is forested, and only 0.2% of the watershed is covered by large blocks of interior forest habitat. There is slight variation in forest conditions across the watershed, with the Main Highland subwatershed receiving a "Fair" or "C" grade for the highest overall proportion of forest cover in TRCA's jurisdiction, with the lower portions of the watershed supporting higher forest cover within the deep ravine systems of the Highland. Species such as red-eyed vireo and great-crested flycatcher that require larger, more mature forests to thrive are found in these areas. In contrast, there is relatively little forest cover remaining in the upper reaches of the watershed, earning the East and West Highland subwatersheds grades of "F" ("Very Poor") and "D" ("Poor"), respectively.



Groundwater Quality

Indicators

- Nitrate and Nitrite
- Chloride



Overall, groundwater quality in TRCA's watersheds is "Good" with the best water quality found in the intermediate aquifer on the Oak Ridges Moraine.

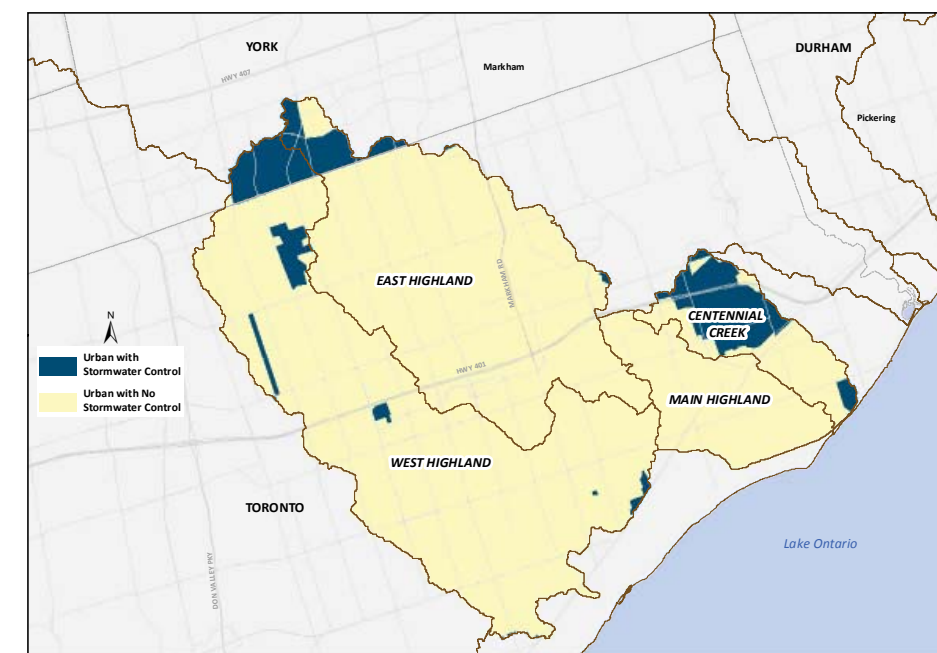
The majority of the wells yield very good results for nitrates and nitrites, indicating little or no contamination from agricultural manure, fertilizers or leaky septic systems. However, several wells show chloride levels above the Canadian drinking water standard in urbanized portions of the watersheds, where road salt may be a factor or in deeper aquifers over shale bedrock that have naturally elevated chloride levels. There are 21 groundwater monitoring wells in the current monitoring network, concentrated in northern sections of TRCA's jurisdiction where wells still provide municipal drinking water. There is no data for the Mimico, Highland, Carruthers and Petticoat watersheds, and limited data for the other watersheds. Over time, TRCA intends to expand the network through partnerships with the Regional municipalities of Peel, York and Durham.



Stormwater Management

Indicator

- % of Developed Area with Stormwater Controls-Quality and Quantity (i.e., stormwater management pond)



As of 2013, only 9% of the watershed has stormwater management controls, earning the watershed an "F" grade.

The City of Markham within the upper portions of the watershed and the City of Toronto within the Centennial Creek subwatershed have the highest levels of stormwater controls within the Highland. With the continued urbanization of the watershed, the overall volume of total surface water flow has more than doubled in Highland Creek since 1958, while the amount of total annual precipitation has remained relatively constant. With much of the stormwater discharged directly into the Highland, it is highly susceptible to flooding, stream erosion and water pollution. In order to restore the health of the Highland and protect property and urban infrastructure, the focus should be on implementing recommendations from the City of Toronto's Wet Weather Flow Master Plan, including disconnecting roof leaders and retrofitting older areas with low impact development controls — such as rain gardens, green roofs and permeable parking lots that allow rainwater to seep into the ground.

