

Terrestrial Monitoring Program

Tracking the Health of the Credit River Watershed



The Credit River Watershed is rich in lush forests, diverse wetlands, and fertile stream banks or riparian zones. These terrestrial ecosystems provide life-supporting services such as clean and abundant water, clean air, pollination and natural pest control as well as resources for food, fuel and medicine.

Our natural ecosystems face a variety of local, regional and global pressures. Some stressors include loss and fragmentation of natural areas; degradation of water quality; introduced pests, pathogens and non-native species; and climate change. Monitoring ecological health and integrity of natural habitats allows us to gauge the combined impact of these stressors on our natural systems and to guide adaptive management, sound land use planning and restoration efforts within the Credit River Watershed.

Top Three Monitoring Questions

1. How is the integrity of the Credit River Watershed's forests, wetlands and riparian (streamside) zones changing over time?
2. How does surrounding land use affect the plant and animal communities in the Credit River Watershed?
3. How can management practices and restoration maintain the integrity of natural areas?



Who We Are

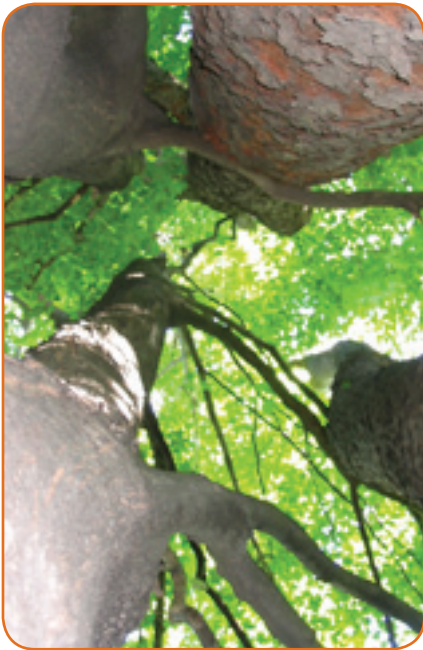
- The Terrestrial Monitoring Program is part of the Lands and Natural Heritage Department at Credit Valley Conservation (CVC). The program was established in 2002.
- The program is a component of a larger, interdisciplinary Integrated Watershed Monitoring Program (IWMP).
- The Terrestrial Monitoring Program has strong partnerships with neighbouring conservation authorities, landowners, federal and provincial agencies and municipalities.

HOW WE MONITOR

Monitoring is conducted annually at permanent plots placed across the watershed. Standardized national protocols are used to develop comparable datasets and to conduct effective statistical analyses.

Protocols used in terrestrial monitoring:

- *Environmental Monitoring and Assessment Network (EMAN)* - Environment Canada
- Marsh Monitoring Program
- *Ontario Forest Bird Monitoring Program* - Environment Canada
- CVC protocols

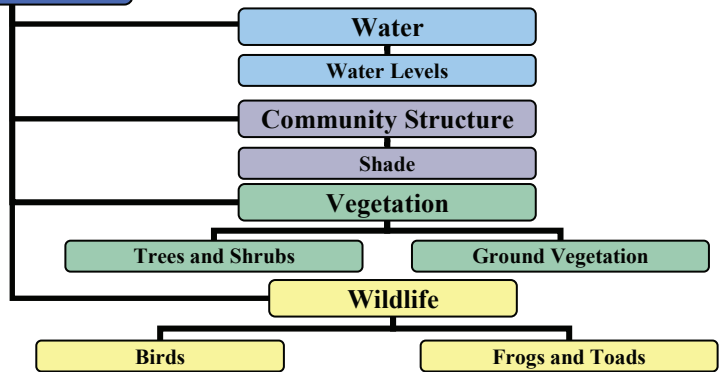


Terrestrial monitoring involves visiting permanent plots on an annual basis to measure both living and non-living ecosystem health indicators.

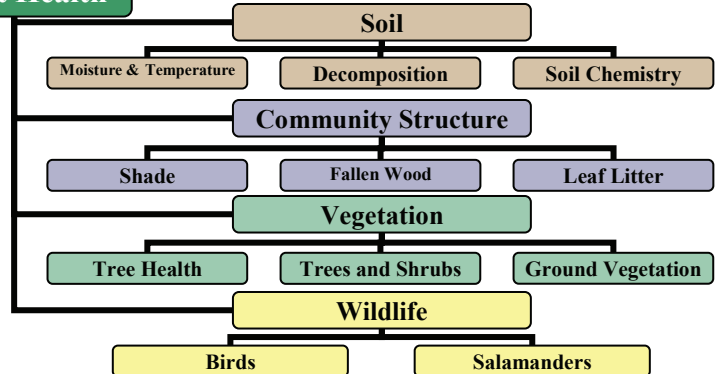
WHAT WE MONITOR

- Permanent monitoring plots have been established in forest, wetland and riparian (streamside) communities.
- A variety of living and non-living indicators are measured in each ecosystem type. When examined together, these components provide a comprehensive picture of ecosystem integrity within the watershed.

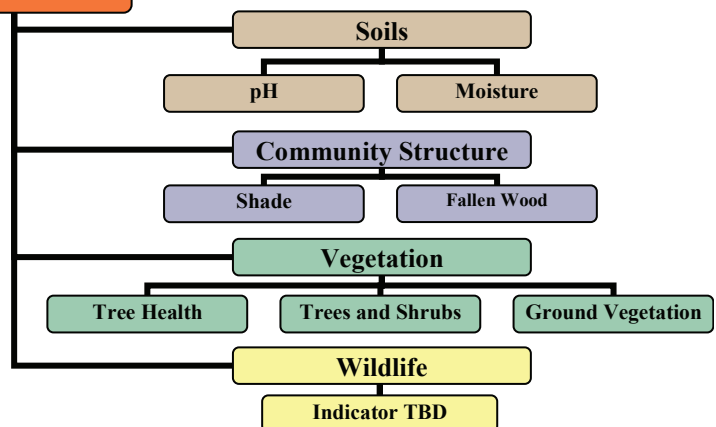
Wetland Health



Forest Health



Riparian Health

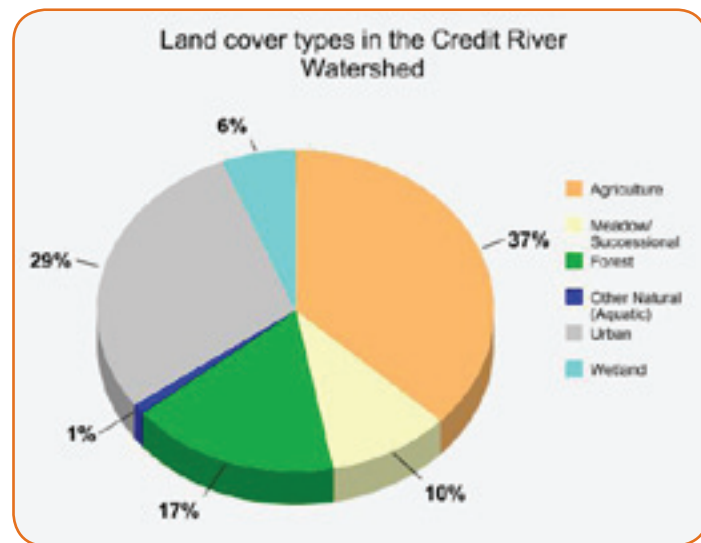


WHERE WE MONITOR

- Currently:
 - 30 forest sites
 - 25 wetland sites
 - 28 riparian sites
- Eight additional wetland sites have been established where only amphibians are monitored.
- Within each ecosystem type, plots are evenly dispersed among the urbanized/lower, natural/middle, and agricultural/upper parts of the watershed.
- Plots are located on both public and private land.

WATERSHED ECOSYSTEM FACTS

- The Credit River Watershed is home to over 1,200 plant species, 251 bird species, 41 different mammals and 31 species of reptiles and amphibians.
- The watershed is home to approximately 40 species that are considered rare in Canada.
- Land use in the watershed is divided almost equally among natural, agricultural and urban uses.



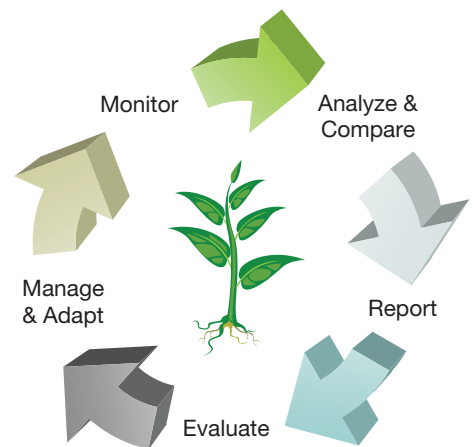
WHEN WE MONITOR

The majority of sampling occurs between April and October.

INDICATORS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Forest												
Soil Temperature												
Soil Moisture												
Decomposition												
Shade												
Fallen Wood												
Leaf Litter												
Tree Health												
Trees and Shrubs												
Ground Vegetation												
Birds												
Salamanders												
Wetland												
Water Levels												
Shade												
Trees and Shrubs												
Ground Vegetation												
Birds												
Amphibians												
Riparian												
Fallen Wood												
Shade												
Tree Health												
Ground Vegetation												
Trees and Shrubs												

RESULTS OF MONITORING

- Data are collected following standardized protocols.
- Results are compared to thresholds that signal changes in forest, wetland and riparian communities.
- Reports are published and results presented to share watershed indicator status and trends. Includes:
 - Annual reports
 - Five-year reports
 - Watershed report cards
- Results are used to improve management practices and monitoring methods.



For more information about our Terrestrial Monitoring Program, please contact:

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