

Metadata: Ontario Forest Biomonitoring Network (OFBN)

Title	Ontario Forest Biomonitoring Network (OFBN)
Abstract	<p>In 1986, the Ministry established the OFBN, a long-term monitoring program that monitors hardwood forest health. The program was initiated in response to widespread reports of forest decline in North America and Europe, and the implication that air pollution was a causal factor. The main objective of the OFBN was to establish and maintain a province-wide database on the visual symptoms of forest health for the province's mixed hardwood forests. In total, 110 permanent forest observation plots were established in 1986 across the range of the mixed hardwood forests in southern and central Ontario. A new site was added in 2010. Currently, 93 plots are monitored as sampling has been discontinued in 18 plots for various reasons. OFBN site locations have been mapped to 1 km polygons to protect the integrity of the plots and respect the privacy of landowners. The plots have been sampled in 1986, 1987, 1989, 1990-2006, 2008, 2011, 2014, 2016-2018 years. Data are available up to 2017.</p> <p>The core monitoring component of the OFBN is the Decline Index, an evaluation of the crown health condition of all trees within each forest monitoring plot. The Decline Index is calculated to the nearest whole number and ranges from zero (0) for a tree stem with no symptoms to one hundred (100) for a stem with maximum decline that does not have any live foliage. The Decline Index is divided into five classes of decline incidence to indicate the severity of decline: Very Low (< 10), Low (10 - <15), Moderate (15 - <20), High (20 - <25) and Severe (\geq 25). The Decline Index is calculated from the proportion of dead branches (crown dieback), chlorotic (pale green-yellow) leaves and undersized leaves on each tree. Chlorosis and undersized leaves are excellent indicators of short-term stress within a year whereas persistent stress across years is measured by crown dieback. Thus, crown dieback is weighted more heavily in the Decline Index than the foliage short-term stress indicators. Strong chlorosis is also weighted more heavily than slight chlorosis; highly stressed trees have a larger influence on the Decline Index. Conifer softwoods were not assessed for decline as their needles do not respond the same way to stresses as hardwood foliage. Monitoring average plot Decline Index scores over time can provide an indication of how the hardwood ecosystem is responding to cumulative environmental stressors including long-range air pollution and climate change.</p> <p>The Decline Index component of the OFBN are assessed and scored by forestry professionals for each tree within a forest monitoring plot. The average forest monitoring plot Decline Index is calculated by taking the mean of all tree decline index scores within the plot.</p> <p>All 1986-2017 Decline Index data were compiled, and quality control checked by the Terrestrial Assessment Unit, Environmental Monitoring and Reporting Branch, Ontario Ministry of the Environment, Conservation and Parks. The Decline Index data were collected by forest service contractors or Ministry staff.</p>
Purpose	<p>The initial objectives of the forest health monitoring were:</p> <ol style="list-style-type: none"> 1. "to establish a network of permanent observation plots in which baseline data can be obtained regarding the condition of the hardwood forest tree species (sugar maple was the primary target species). 2. to develop a rating system to assess the condition of hardwood trees with respect to the symptomatology experienced in Ontario. 3. to evaluate the assessment data and determine if regional differences are apparent in forest tree condition" (MOE 1989). <p>Reference</p> <p>MOE (Ontario Ministry of the Environment). 1989. A Survey to Document the Decline Status of the Sugar Maple Forest of Ontario: 1986. Queen's Printer for Ontario, December 1989.</p>
Status	Completed

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Cited Responsible Parties	<p>Name: Michele Williamson</p> <p>Organisation: Environmental Monitoring and Reporting Branch, Ministry of the Environment, Conservation and Parks</p> <p>Position: Terrestrial Assessment Scientist</p> <p>Role: Program Lead</p>
Keywords	EMRB, Forest, Tree, Hardwood, Biomonitoring, Monitoring
Geographic Bounds	<p>West bound: -95.15699</p> <p>East bound: -74.30798</p> <p>South bound: 41.6723</p> <p>North bound: 56.850117</p>
Supplemental information	<p>DATA AVAILABILITY:</p> <p>*****OPEN DATA CATALOGUE*****</p> <p>Time Period: 1990-2017</p> <div data-bbox="384 1218 719 1323" style="border: 1px solid black; width: 210px; height: 47px; margin: 10px 0;"></div>
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