Metadata: Ontario Forest Biomonitoring Network (OFBN)

Title	Ontario Forest Biomonitoring Network (OFBN)
Abstract	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. Any use of these data should acknowledge the Ontario Ministry of Environment Conservation and Park's Ontario Forest Biomonitoring Network program. The ministry is not liable for any interpretation or conclusions made with the data. Much of the data were collected by ministry staff and/or contractors. Partner organizations also collected salamander data after 2013. All data were quality control checked. Despite this considerable effort, some errors or issues with the data may have been missed. Please inform Michele.Williamson@ontario.ca of any issues discovered. **Decline Index:** The core monitoring component of the OFBN is the Decline Index that measures visual stress symptoms of all hardwood trees within forest monitoring plots. The Decline Index is calculated from the percentage of dead branches (crown dieback), chlorotic (pale green-yellow) leaves and undersized leaves in each tree top (crown). The Decline Index is calculated to the nearest whole number and ranges from 0 for a tree stem with no stress symptoms to maximum decline of 100. 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 (≥ 25).

Monitoring average plot Decline Index scores over the years can indicate how hardwood forests are responding to cumulative environmental stressors including long-range air pollution and climate change.

Individual Mature Tree Data:

The Decline Index is only one of many measures of tree stress that have been measured on individual trees within OFBN plots. Stress measures have varied over the years and include forest canopy cover, tree crown cover, crown vigour, tree damage/defects, insect defoliation, disease, etc. Tree mortality, diameter at breast height and heights has also been measured. Tree species have been identified.

Tree Regeneration Data:

Forest health is indicated by the amount of regeneration of new trees. Numbers of individuals were counted for five height classes of seedlings and saplings of each tree species that were found in 2 metre X 2 metre regeneration plots.

Woody Debris Data:

Forest health is indicated by the amount of woody debris fallen onto the ground. Amounts of woody debris were measured along the western, northern, and eastern borders of the 50 metre X 50 metre tree plots. If possible, the species, decomposition, condition, and cause of mortality were identified for fallen debris.

Invasive Plant Species:

Invasive plants have the potential to stress other vegetation species. Presences of invasive species were recorded if they were observed inside or outside of the main 50 metre X 50 metre tree plot.

Salamander Data:

Salamanders are sensitive to multiple stresses e.g., climate conditions. Counts of individuals of each species were made on

	sampling boards that were located adjacent to the main 50 metre X 50 metre tree plot.
Purpose	The initial objectives of the forest health monitoring were: 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" (McIlveen *et a*l. 1989). McIlveen, W.D., McLaughlin, D.L., and Arnup, R.W. 1989. A survey to document the decline status of the sugar maple forest of Ontario. Ontario Ministry of Environment, December 1989. ISBN 0-7729-6253-7. Queen's Printer for Ontario. <u>www.archive.org</u>
Status	Ongoing
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Geographic Bounds	**West bound: -95.15699** **East bound: -74.30798** **South bound: 41.6723** **North bound: 56.850117**
Supplemental information	DATA AVAILABILITY: ***********************OPEN DATA CATALOGUE**************** Time Period: • Plot average Decline Index and Individual Mature Tree Data (1986, 1987,1989-2006, 2008, 2011, 2014, 2016-2017) • Tree Regeneration (2008, 2011, and 2014) • Woody Debris Data (2008, 2011, and 2014) • Invasive Plant Species Presence Data (2005, 2006, 2008, and 2014) • Salamander Data (2009-2018)
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