

A RAPID SURVEY OF OAKVIEW WOODS: AN OLD-GROWTH FOREST IN WASAGA BEACH PROVINCIAL PARK, ONTARIO

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SUMMARY

Oakview Woods, located in Wasaga Beach Provincial Park, was visited as part of our Eastern Hemlock Project. This is one of a series of rapid surveys of old-growth eastern hemlock forests undertaken in anticipation of the arrival of hemlock woolly adelgid (HWA), an invasive species that has killed thousands of hectares of eastern hemlock forests in the eastern U.S. HWA is currently established in 43 counties of New York State (NYSDEC 2018) and has been detected in Canada in a few southern Ontario locations.

This small (~17 ha) woodland, growing on ridge and trough topography of the Nipissing Beach Ridges, consists of upland eastern hemlock forest and lowland red and black ash swamp likely originating after a wind event over 200 years ago. It was identified as potential old-growth forest by North-South Environmental (2005) during a life-science inventory of the Park. We were invited by Provincial Park staff to evaluate its old-growth status.

The forest is adjacent to a YMCA, skate park, mountain-bike course, and large parking lot. Nevertheless, it has a primeval feel to it, and our rapid survey indicates that it qualifies as an old-growth forest by most definitions except for those that emphasize lack of human disturbance. It contains eastern hemlocks that reach at least 198 years old and are commonly over 150 years, logs and snags in all decay classes, and pit and mound topography. However, the forest also has numerous stumps from historical logging, which are most likely from white pine trees that were removed more than 80 years ago.

INTRODUCTION

We visited Oakview Woods in Wasaga Beach Provincial Park on Friday Nov 3, 2017 as part of the Eastern Hemlock Project. This is one of a number of field surveys undertaken with the following goals:

- use maps, literature, and field data to identify and characterize old growth eastern hemlock forests in anticipation of the arrival of HWA,
- collect field data to confirm visual characteristics of old age in eastern hemlock trees, and
- raise the public profile of eastern hemlock as an old-growth and foundation species that is currently under threat.

Oakview Woods consists of upland eastern hemlock forest and lowland red and black ash swamp. The forest was identified in 2005 as potential old-growth forest by North-South Environmental (2005). At the invitation of park staff, we conducted a rapid survey to assess its potential old-growth status.

UPLAND EASTERN HEMLOCK FOREST

The uplands in Oakview Woods are dominated by eastern hemlock mixed with white cedar and red maple with occasional white birch, white pine and red ash. Old-growth characteristics were common including old trees (confirmed by tree cores), logs and snags, climax tree species, uneven-age structure, and pit and mound topography. We found tree ages between 166 and 198+ years. The oldest tree was an eastern hemlock with a ring count of 174 and a minimum estimated age of 198 years. Two other eastern hemlocks were 166 and 188 years old. Twenty four years was added to ring counts to adjust for years to reach breast height (4.5 ft.; Vasiliauskas 1995).

North-South Environmental (2005) identified the ecosite type as fresh-moist eastern hemlock coniferous forest, and also noted that “Eastern white cedar, which appears to have been the previous canopy before being replaced by eastern hemlock, has begun to die and many are falling, along with some older eastern hemlocks.” We observed a white cedar that appears to be as old, or older than the eastern hemlocks. However, it seems unlikely that either white cedar or eastern hemlock are dying of old age, since both species can live more than 400 years in a forest setting and there is little evidence that trees in this forest greatly exceed their estimated age of 200-250 years.

Oakview Woods has significant evidence of historical logging of larger trees in many parts of the stand. Stumps appear to date to a harvest more than 80 years ago and were likely white pine or eastern hemlock (remnant bark was found but couldn't be positively identified). It seems most likely that white pine, which would have been larger and more valuable than eastern hemlocks of a similar age, were cut from the forest while the eastern hemlock component was left. In one location relatively small white cedar stumps occur that may have been cut shortly before the parcel was incorporated into the Park.

Pit and mound topography is pronounced throughout the stand, which may date to a single wind event over 200 years ago. The oldest eastern hemlock that we aged was growing on the mineral soil of a tip-up mound (helping date the wind event), with a large highly-decayed log associated with the mound. The size of both the log and mound indicate that an old-growth forest occurred here prior to the wind event(s).

SLOUGH FOREST

Red and black ash swamp occurs in a slough near the south-east edge of the woodland, close to the parking area. A red ash growing in the slough was at least 156 years old (ring count of 141), and some other red ash have visual characteristics suggesting they may be of a similar age. The black ash are smaller and were not aged, but some may also be old. Red ash is a versatile, early to late successional tree species that has been identified in old-growth forests in the United States living up to 250-350 years (Gucker 2005). Old-growth red ash forest in Ontario is not well documented.

This old-growth ash slough occurring within a provincial park presents opportunities for ash conservation. The forest should be monitored for resistant ash trees during and following incursion of emerald ash borer (EAB). A study of ash forests attacked by EAB in Ohio found rates of putative resistance to EAB of around 1% (Knight et al. 2012). Silvicultural management of ash, other than removal of hazard trees, is detrimental to ash populations, can accelerate EAB-related decline of remaining ash trees, and may eliminate resistant trees that are valuable for producing seed stock for restoration (Foster and Orwig 2006, Knight et al. 2012, MaMA 2018).

The *Monitoring and Managing Ash (MaMA) Program* is a U.S.-based initiative to use citizen science data to record locations of resistant ash trees for conservation, research and breeding programs (MaMA 2018). The MaMA website provides management guidelines that are applicable to all Ontario ash species. Although MaMA is a U.S.-based initiative, there may be opportunities for collaboration with Canadian organizations (Jonathan Rosenthal, personal communication 2018).

In Canada, the Forest Gene Conservation Association (FGCA) is seeking trees with viable seed to bank ahead of the Emerald Ash Borer impact, as well as trees that have survived an EAB infestation without being treated by TreeAzin (FGCA 2018). The FGCA has set up an iNaturalist project to gather reports from citizen scientists (<https://www.inaturalist.org/projects/ontario-native-ash-seed-and-survivor-dna-collection>).

Figure 1 - Oakview Eastern Hemlock 1

Lat: 44.481063

Long: -80.071141

Ring count: 143

Core: full (missed center slightly)

Estimated age: 198 yrs

DBH: 65.5 cm

Height: 23.8 m

Height of first branch: 8.5 m

Growing on a tip-up mound with an associated large, decay class 5 log; old age characteristics on white cedar and red maple in vicinity; no stumps nearby

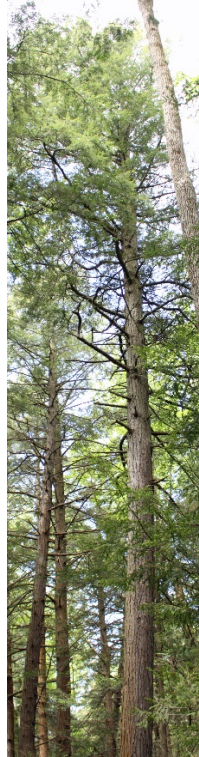


Figure 2 - Oakview Eastern Hemlock 2

Lat: 44.479971

Long: -80.073082

Ring count: 142

Core: partial (some heart rot)

Estimated age: >166 yrs

DBH: 61.8 cm

Height: 22.8 m

Height of first branch: 5.5 m

Part of a nice eastern hemlock grove, many trees may be of a similar age, but younger trees also occur; pit and mound topography is abundant here, likely of a similar age (possibly a single wind event)



Figure 3 - Oakview Eastern Hemlock 3

Lat: 44.47888

Long: -80.071537

Ring count: 164

Core: full

Estimated age: 188 yrs

DBH: 47.4 cm

Height: 18 m

Height of first branch: 6 m

Growing near edge of slough; cut stumps in vicinity

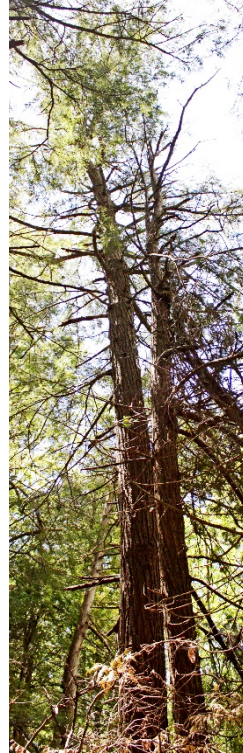


Figure 4 - Red Ash 1

Lat: 44.478868

Long: -80.071917

Ring count: 141

Core: full

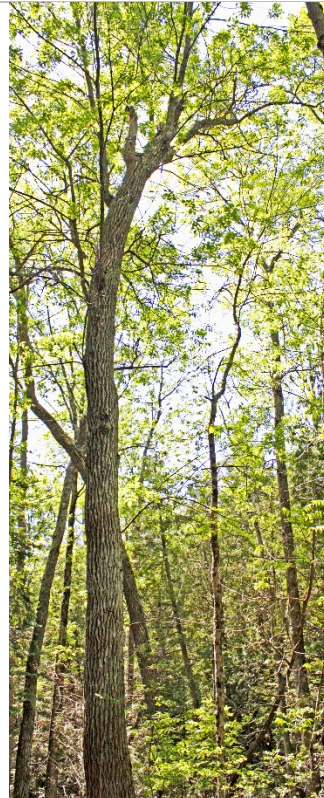
Estimated age: 156 yrs

DBH: 48.2 cm

Height: 17.4 m

Height of first branch: 4 m

Growing on a low hummock in slough, completely surrounded by water at time of sampling; swamp forest of red and black ash, numerous red ash in particular may be old growth



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