

# THE JACKSON CREEK OLD-GROWTH FOREST: A SIGNIFICANT WOODLAND IN PETERBOROUGH, ONTARIO

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## INTRODUCTION

Recent research has added to the understanding and characterization of an impressive older forest found in Jackson Park, City of Peterborough, Ontario. In this 3.7 ha forest, trees greater than 150 years old are common with maximum ages of 256 years (Fig. 1). It is dominated by White Cedar, White Pine, and Eastern Hemlock; Cedar and Hemlock appear to be self-replacing (Figs. 2 & 3). White Pines up to 34.5 m tall create a super-canopy over White Cedar and Eastern Hemlock, large diameter snags and logs are relatively abundant, and Pileated Woodpecker feeding cavities on trees and snags are common. A summary of the research results are presented in the following table.

TABLE 1. OLD-GROWTH FOREST CHARACTERISTICS

Characteristics	Occurrence in Jackson Creek Old-Growth Forest
Climax species	Late successional species are dominant (57% of basal area) and are present in all diameter classes. White Cedar and Eastern Hemlock appear to be self-replacing.
Old trees	Trees >150 years old are common, with maximum ages of 256 years. Twenty four tree cores yielded an average ring count of 132, and an average estimated age of 172 years.
Large diameter trees	Almost one in five trees has a diameter of 50 cm or greater.
Coarse woody debris	Large diameter snags and logs are relatively abundant. Basal area of snags was 2.4 m <sup>2</sup> /ha.
Pit and mound topography	Pit and mound topography was observed in all parts of the stand, but was least abundant on the north shore of Jackson Creek.
Super-canopy trees	White Pines up to 34.5 m tall create a super-canopy over White Cedar and Eastern Hemlock.
Wildlife use	Pileated Woodpecker feeding cavities are common.

Previous studies have concluded that the Jackson Creek Old Growth Forest (OGF) is a Significant Woodland, is part of a Significant Valleyland, and is a Cultural Heritage Landscape (AECOM 2014, Golder Associates 2014). We agree with these designations and, in our opinion, this forest is also an "Old-Growth Forest" and a "Significant Wildlife Habitat" as defined by provincial criteria.

The purposes of this Bulletin are to share the main results of the research and to seek additional information and context in order to assess this forest within its local and broader landscape. The following sections discuss the Jackson Creek OGF in relation to various criteria and definitions. Reviewers of this information are encouraged to contact Ancient Forest Exploration & Research with further information, data or context.

## SIGNIFICANT WOODLANDS

References: Ontario Provincial Policy Statement 2005; Natural Heritage Reference Manual 2010

The Ontario Ministry of Natural Resources, in its Natural Heritage Reference Manual (2010), states that Woodlands should be considered significant if they meet various criteria. Some of these are noted and discussed below.

*A naturally occurring composition of native forest species that have declined significantly south and east of the Canadian Shield and meet minimum area thresholds (e.g., 1–20 ha, depending on circumstance)*

Eastern Hemlock has declined significantly from pre-settlement levels, south and east of the shield in Ontario, and throughout most of its range (Keddy 1994, Foster 1999, Suffling et al. 2003). Eastern Hemlock is the third most dominant tree in this forest at 13% of the basal area, is included as a component of the largest and oldest trees, and appears to be self-replacing in the stand.

*Characteristics of older woodlands or woodlands with larger tree size structure in native species and meet minimum area thresholds (e.g., 1–10 ha, depending on circumstance):*

- *older woodlands could be defined as having 10 or more trees/ha greater than 100 years old*
- *larger tree size structure could be defined as 10 or more trees/ha at least 50 cm in diameter, or a basal area of 8 or more m<sup>2</sup>/ha in trees that are at least 40 cm in diameter*

Our plot data indicate that the Jackson Creek OGF has over 100 trees/ha at least 50 cm in diameter, or ten times the threshold. Based on tree core data, all of these are likely to be significantly older than 100 years. In addition, the Jackson Creek OGF compares favourably with 34 heritage woodlands surveyed by Larson et al. 1999 (Table 2). Being located within the City limits of Peterborough, it also has values related to nature appreciation, education, culture and history.

TABLE 2: COMPARISON OF JACKSON CREEK TO DOCUMENTED OLD GROWTH FORESTS

	Jackson Creek Old-Growth Forest	Heritage Woodland Average (from Larson et al. 1999)
Mean Tree Diameter (cm)	32.6	34
Percent of trees with diameter greater than 49 cm	19.4	19
Basal area (m <sup>2</sup> /ha)	44.4	36
Mean # logs/point	1.1	1.2
Mean log diameter (cm)	35.3	31.7

A few other older growth forests can be found in the Peterborough area, as noted from the literature in the table below. Under the provincial landscape classification system, the City of Peterborough is located in Site District 6E-8, an area extending from Lake Simcoe to the Trent River and lying south of the main Kawartha lakes.

TABLE 3: DOCUMENTED PETERBOROUGH AREA OLD GROWTH FORESTS

SITE NAME, SOURCES	LOCATION/SITE DISTRICT	MAIN SPECIES	CHARACTERISTICS
Jackson Creek Old Growth Forest	Jackson Park, City of Peterborough, 6E-8	White Cedar, White Pine, Eastern Hemlock	Pines 34+ m; trees 100+ years; DBH White Pine 97 cm, White Cedar 81 cm, Hemlock 69 cm; coarse woody debris; pit and mound topography
Mark S. Burnham Provincial Park	Mark S. Burnham Provincial Park, City of Peterborough, 6E-8	Eastern Hemlock, Sugar Maple, American Beech	Old Growth
Promise Rock Natural Area (Jones et al. 2002, p.264; Ben-Oliel et al. 1989, p.51)	Trent University, City of Peterborough, 6E-8	White Cedar, White Pine, Eastern Hemlock, White Spruce, Balsam Fir, Larch	Super-canopy White Pines over 30 m; DBH: White Pines 60-71 cm, White Spruce 54 cm, White Cedar 63 cm, Hemlock 47.7 cm; trees 100+ years
Young`s Point ANSI	Young`s Point, Peterborough County, 6E-9	White Pine	Old Growth
Stewarts Woods	Otonabee River, Peterborough County, 6E-8		Old Growth
White Pine and Eastern Hemlock Forests (Ontario Parks 2005, p.27)	Tuckers Road , Anstruther Lake and Bottle Creek , Kawartha Highlands Provincial Park, Apsley, Peterborough County, 5E-11	White Pine, Eastern Hemlock	Old Growth
Sugar Maple and Red Oak Forests (Ontario Parks 2005, p.27)	Southwest limestone plain, Anstruther Lake Road, northeastern end, Kawartha Highlands Provincial Park, Apsley, Peterborough County, 5E-11	Sugar Maple, Red Oak	High quality forests
Highway 28 Woods (Jones et al. 2002, p.236; Ben-Oliel et al. 1989, p.43)	Trent University, City of Peterborough, 6E-8	White Ash, Sugar Maple, American Beech	DBH: Butternut 39.8 cm; Beech 35-83.5 cm; White Ash 73 cm; Sugar Maple 63.5 cm; mature trees, fallen wood, pit-and-mound topography

## OLD-GROWTH FOREST

References: Old Growth Forest Definitions for Ontario 2003; Significant Wildlife Habitat Technical Guide 2010

As stated in the Significant Wildlife Habitat Technical Guide, "due to the rarity and fragmented distribution of old growth forests in southern Ontario, as much of identified sites should be represented as many times as possible... Sites that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are highly significant." The Jackson Creek OGF meets all generally accepted definitions for old-growth forest in Ontario, as shown in Tables 1 and 4.

TABLE 4. OLD GROWTH AGE OF ONSET COMPARED WITH TREE AGES IN JACKSON CREEK OLD-GROWTH FOREST

Tree Species	Old Growth Age of Onset by Species (MNR 2003)	Maximum Cored Age in Jackson Creek Old-Growth Forest	Average of Cores in Jackson Creek Old-Growth Forest
White Pine	120-150	168	146
White Cedar	110-150	256	188
Eastern Hemlock	140-180	204	181

## SIGNIFICANT VALLEYLANDS

References: Ontario Provincial Policy Statement 2005; Natural Heritage Reference Manual 2010

The Jackson Creek OGF grows primarily on the eastern-facing slope of the Jackson glacial spillway that once drained Lake Jackson. This old-growth riparian forest is connected to an additional 85 ha of contiguous second growth riparian forest with no road crossings, and the forested area is adjacent to wetlands and small forest patches, including the provincially-significant Jackson Creek Wetland East, amounting to slightly over 100 ha. The total contiguous road-free natural area is approximately 193 ha. After the road crossing at Ackison Road, this natural area connects via the Jackson Creek riparian zone, a natural corridor of varying width, to the Cavan Swamp Wildlife Area and to other natural areas.

## SIGNIFICANT WILDLIFE HABITAT

References: Ontario Provincial Policy Statement 2005; Natural Heritage Reference Manual 2010; Significant Wildlife Habitat Technical Guide 2010

Because of its connectivity to the surrounding landscape and because it is an old-growth forest, it can be assumed that Jackson Creek OGF is significant wildlife habitat. Barred Owls have been heard in the area, and Pileated Woodpecker feeding cavities are abundant. Naylor et al. (1996) state that, "Because Pileated Woodpeckers require relatively old forest and large trees for nesting, roosting and feeding, forest management activities are generally considered to have a negative impact... Pileated Woodpeckers respond to the loss or fragmentation of suitable habitat by changing their pattern of habitat use and increasing home range size." Further study of Jackson Creek OGF as significant wildlife habitat is needed.

## CULTURAL SIGNIFICANCE

The Jackson Creek OGF has long been recognized as having important cultural value, both historically and to the present day. It has been noted in various Peterborough reports, in photographs, and was recently recognized as a Cultural Heritage Landscape (Golder 2014). It continues to be a location of high scenic value and diverse recreational pursuits, such as walking, mountain biking, nordic skiing, birding and other activities by nearby residents and visitors alike.

# JACKSON CREEK OLD GROWTH FOREST STUDY RESULTS SUMMARY

FIGURE 1.GEOGRAPHIC DISTRIBUTION OF AGES FROM TREE CORES



TABLE 5. SUMMARY OF TREE CORE DATA

Species (Number Of Cores)	Minimum Age	Maximum Age	Average Age
White Pine (8)	113	168	146
White Cedar (9)	136	256	188
Eastern Hemlock (7)	149	204	181
<b>Total (24)</b>	113	256	172

FIGURE 2. BASAL AREA OF TREES IN JACKSON CREEK OLD-GROWTH FOREST

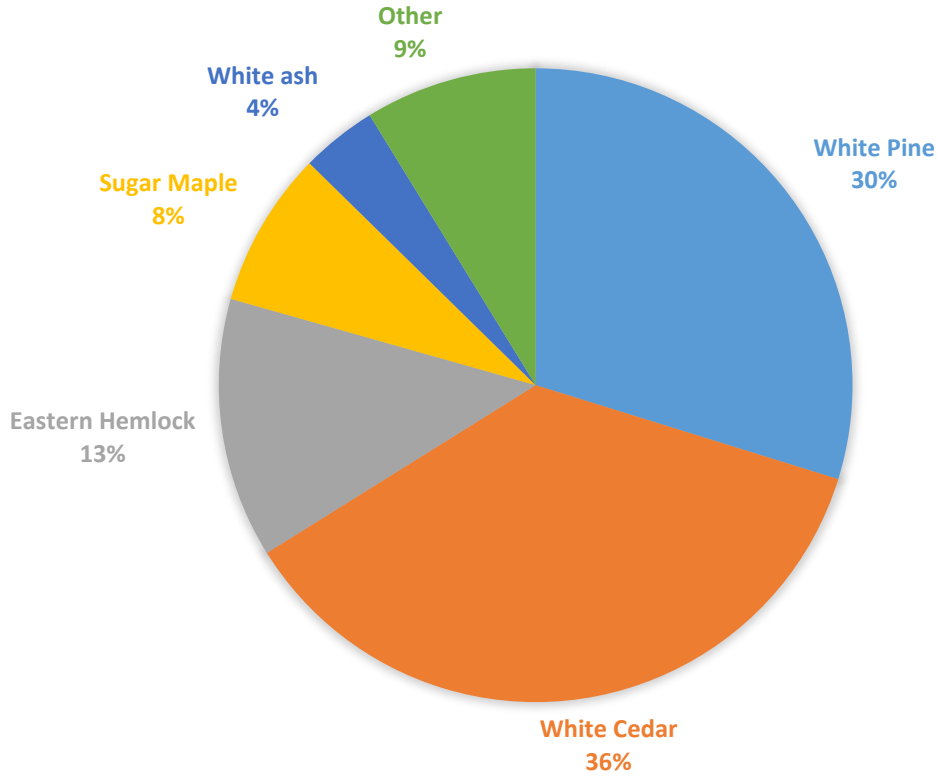
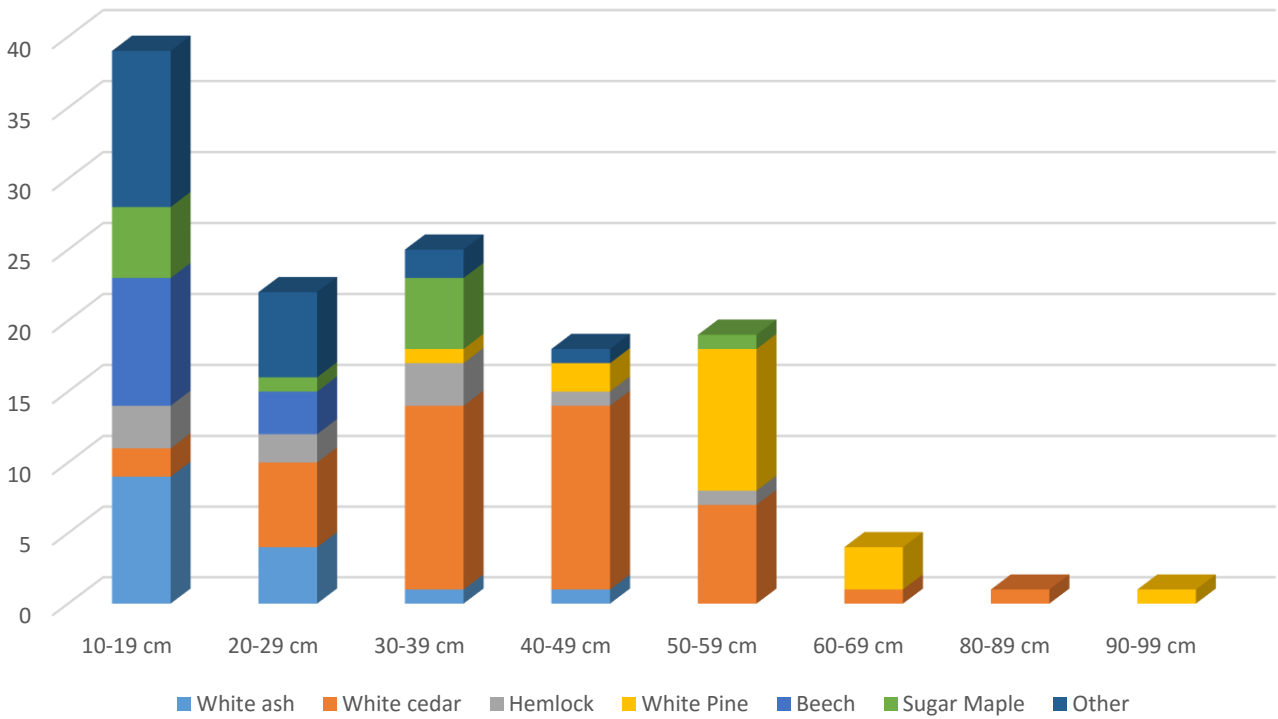


FIG. 3 DIAMETER CLASSES OF TREES IN JACKSON CREEK OLD-GROWTH FOREST



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