Ages of Large Trees at Mark Burnham Provincial Park, Ontario

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The Project

In March of 2019, Ancient Forest Exploration & Research began work on a one-year project to assess and describe old-growth forests (OGF) in Peterborough County funded by the Ontario Trillium Foundation. Part of this project involved field sampling at Mark Burnham Provincial Park (MBPP; Aug. 2019), which is a relatively large old-growth forest (39 ha; 90 ac) contiguous to the City of Peterborough, Ontario. Given its substantial size and its close proximity to Peterborough, this OGF was an ideal site to train staff and volunteers, to collect OGF data for comparison with other OGFs in Ontario's Temperate Forest Region and to develop OGF assessment and monitoring methods. In order to collect tree cores at MBPP, AFER obtained a permit from the Ministry of Environment, Conservation and Parks. This report provides results from the age estimates obtained from the 20 tree cores collected from MBPP. Another report that addresses OGF features at MBPP in a more comprehensive manner is currently in preparation.

Results

Figure 1 shows the location of each plot (circular, 500 m^2) and Table 1 shows our tree age results. Of the 20 trees that were cored and aged, nine were sugar maple, eight were eastern hemlock, two were white cedar and one was American basswood. The largest tree cored was an eastern hemlock with a DBH of 78.7 cm and an estimated age of 207 years. The oldest tree cored was a sugar maple estimated at 334 years with a DBH of 62 cm. The smallest tree cored was a sugar maple with a DBH of 29.6 cm and an age of 183 years. Four trees were younger than predicted by the minimum OGF tree diameters provided in Quinby (2020), however, 16 trees representing all ten plots did meet these minimum diameters. No more than one of the two aged trees per plot was younger than the minimum, thus this prediction error did not affect the classification of a plot as part of an OGF. Should both trees cored in a plot be younger than the minimum OGF age, an increase in the number of large trees cored in each plot should be considered.

References

Fraver S., J. B. Bradford and B. J. Palik. 2011. Improving tree age estimates derived from increment cores: a case study of *Pinus resinosa*. ***Forest Science*** 57:164-170.

Quinby. P. 2020. Minimum Diameters for Old-growth Trees in Ontario's Northern Temperate Forests. ***Forest Landscape Baselines No. 36***, Ancient Forest Exploration & Research, Powassan & Peterborough, Ontario. (https://14b54489-f611-4cf7-9e23-d1b121227c63.filesusr.com/ugd/1eacbf_d0fad9641f2a464986ae5d9b7478ed6a.pdf)

Vasiliauskas, S. A. 1995. ***Interpretation of Age-structure Gaps in Hemlock (Tsuga canadensis) Populations of Algonquin Park***. Ph.D. Thesis, Department of Biology, Queen's University, Kingston, Ontario.

Figure 1. Location of Plots Sampled in Mark Burnham Provincial Park (39 ha)

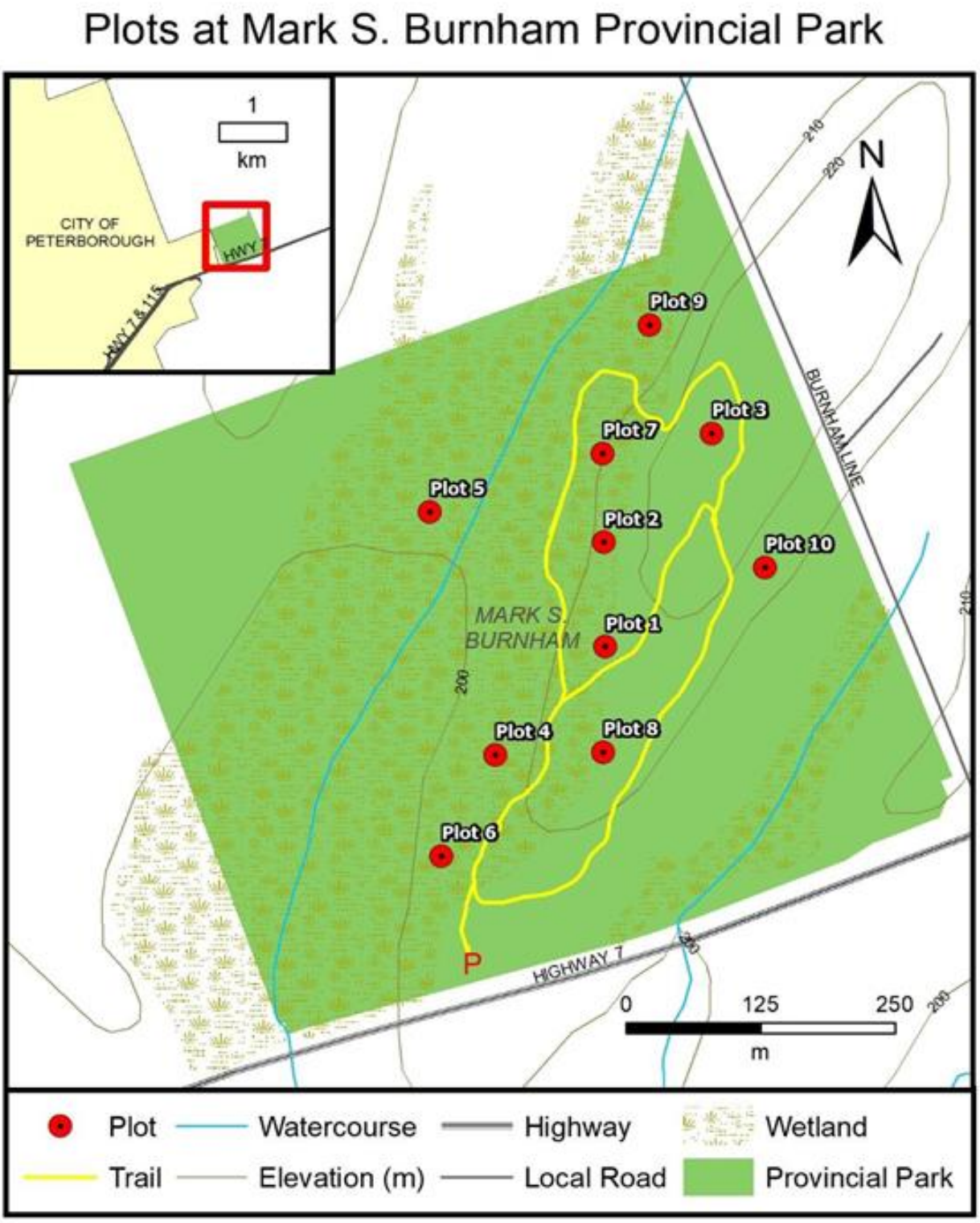

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Table 1. Tree Age Estimates for Large Trees at Mark Burnham Provincial Park, Ontario

Plot	Spp	DBH	Meets Min. OGF DBH[1]	Ring Count	Yrs to Reach 4.5 ft[2]	Final Age Estimate	Meets Min. OGF Age	Location
1	eastern hemlock	54.0	yes	193	24	217	yes	44.29984 N, -78.26837 W
1	sugar maple	38.0	yes	147	15	162	yes	44.29976 N, -78.26838 W
2	sugar maple	44.6	yes	150	15	165	yes	44.30065 N, -78.26846 W
2	eastern hemlock	40.4	yes	92	24	116	no	44.30064 N, -78.26832 W
3	American basswood	57.1	no	87	15	102	yes	44.30170 N, -78.26685 W
3	eastern hemlock	41.3	yes	160	24	184	yes	44.30152 N, -78.26706 W
4	sugar maple	62.0	yes	319	15	334	yes	44.29896 N, -78.26975 W
4	eastern hemlock	55.5	yes	228	24	252	yes	44.29883 N, -78.26975 W
5	white cedar	59.5	yes	261	15	276	yes	44.30095 N, -78.27036 W
5	white cedar	37.9	yes	105	15	120	yes	44.30090 N, -78.27045 W
6	sugar maple	45.5	yes	122	15	137	no	44.29800 N, -78.27042 W
6	eastern hemlock	45.4	yes	212	24	236	yes	44.29796 N, -78.27026 W
7	sugar maple	76.2	yes	190	15	205	yes	44.30139 N, -78.26827 W
7	eastern hemlock	51.0	yes	227	24	251	yes	44.30145 N, -78.26830 W
8	sugar maple	41.8	yes	114	15	129	no	44.29889 N, -78.26849 W
8	sugar maple	29.6	no	168	15	183	yes	44.29884 N, -78.26826 W
9	eastern hemlock	78.7	yes	183	24	207	yes	44.30257 N, -78.26800 W
9	eastern hemlock	76.5	yes	274	24	298	yes	44.30251 N, -78.26775 W
10	sugar maple	45.9	yes	158	15	173	yes	44.30029 N, -78.26656 W
10	sugar maple	44.5	yes	101	15	116	no	44.30043 N, -78.26661 W

1-see Quinby (2019); 2-to account for time to reach breast height, 24 years was added to ring counts for eastern hemlock (Vasiliauskas 1995) and 15 years was added to ring counts for the other tree species (Fraver et al. 2011).