BRINGING NATIVE BIODIVERSITY INTO OUR NEIGHBOURHOOD

Interim Project Evaluation Report

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1. The Context

A vegetation survey in 2016 by the University of Ottawa Plant Science Laboratory of the National Capital Commission (NCC) woodlands along the Ottawa River and bordering Champlain Park found that the area was a valuable biodiversity and recreational asset but showed signs of severe degradation. Historic clearing for cottages, damage from a major ice storm in 1998 and the arrival of invasive species have left the area in a state of "arrested succession" with a dominant and invasive Buckthorn cover in many areas. Thin poor soils on a dry limestone base, depleted native species and a depleted native seed bank have made it difficult for biodiversity to thrive and natural succession to occur in the woodlands. The neighbouring residential area that makes active use of the woodlands for



Buckthorns

Buckthorns include common (Rhamnus cathartica) and glossy buckthorn (R. frangula). The problem in the Ottawa context is that Buckthorn crowds out native plants by allelopathy (producing a plant toxin) and by producing many fruits, which are easily spread by birds. Much of the Ottawa River shoreline in the Ottawa area is now dominated by Buckthorn, with a strongly negative impact on forest understory and the diversity of tree cover. recreation has also suffered its own decline in biodiversity due to greater housing density, a loss of greenspace and impacts from urban pollution. Since 2011 the Environment Committee of the Champlain Park Community Association has mobilized volunteers in response to this situation, by bringing native plant biodiversity into the public woodlands and residential area. Specific activities related to this project include planting native trees, shrubs and spring ephemeral and summer flowering plants in small, compact areas cleared of non-native invasive vegetation. Funding was provided by local residents and the City of Ottawa Community Environmental Projects Grant Program.

2. Achievements

The goal of this project is to test a novel approach to planting in woodland spaces with very thin soils and abundant invasive species. It involves creating low mounds



of rotting wood, leaves and soil in three locations (Map 1) and planting into them with native trees, shrubs and flowering plants. The work was initiated in the spring with several test mounds but most was undertaken during the months of August through October, 2020.

Location A and B had previously been cleared of dead Ash and buckthorn by the NCC, thereby providing light and an abundant source of branches for making individual mounds.



Some 70 mounds were established at these two locations by raking rotting wood into a pile and adding about 3 cubic feet of soil to each mound. This activity required less than 15 minutes of relatively light work per mound, compared to 30 minutes or more of heavy work to dig a suitable hole and fill with soil. Saplings were then planted into the mounds and protected from browsing with a staked wire cage, as per past practice. Later in the season, 2 or so cubic feet of leaves collected from the neighbourhood recycling program were added to each mound as an extra insulation layer. Some 18 volunteers were involved in creating mounds and planting and protecting the saplings, dedicating approximately 80 person hours in total to the two locations.



Location C was different, due to its location along the edge of a recently closed roadway between the City Park and the NCC lands. On one part of the site volunteers dug a line of trenches into the underlying gravel about 1.5-2 feet deep, and added rotting wood and soil to create a low mound into which trees were planted. This took approximately 15 person hours, and accommodated 11 saplings. In all, 91 trees were established at the three sites and protected against browsing and winter temperatures (Table 1).



Common name	Number planted	Sites (A, B, C)
Paper Birch	18	A, C
Black Elderberry	ю	A, B, C
White Cedar	5	A, B
White Pine	5	A, C
Red Pine	5	А, С
White Spruce	5	A, B
Sugar Maple	5	А
Burr Oak	24	A, B
Yellow Birch	8	A, B, C
Eastern Redbud Cercis canadensis	I	В
American Sycamore	Ι	А
Blue Spruce	3	С
Black Cherry	I	С
Black Choke Berry	2	А, В
Total	91	

Table 1: List of trees planted at three locations.

At another part of Location C, near the entrance to the Ottawa River, volunteers first cleared Buckthorn, suckers of dead Ash trees and the remains of an old chain link fence embedded in the shrubs. Established healthy trees, including 2 Elms and a Burr Oak, were left in place. The stumps of the Buckthorn were then removed by hand, using a shovel, saw and manual stump puller. Some 52 cubic yards of soil was dumped at the site and used to form a single undulating mound approximately 30 feet long and 15 feet wide. The added soil was deep enough to completely bury remaining Ash stumps and branches from the cut vegetation left on the ground. All seed bearing parts of the Buckthorn were removed from the site, as were the remains of the chain link fence. The site was then planted with native flowering plants and shrubs to create a habitat suitable for pollinator insects (Figure 1). It was also protected with a low stone wall to keep the soil in place, mulch on narrow paths into the middle of the mound, and a rope fence and informative sign. While no record was

made of the level of effort involved, establishing the pollinator garden mound took many hours of hard work, especially by two dedicated volunteers.











Figure 1: Map of pollinator garden and list of species.

4-Star Elm 5-star bur oak Hexagon – assorted bulbs

1	lilac	non-native
2	cup plant	
3	tall white aster	donation Anne Sullivan
4	Queen of the Prairie	
5	shrubby st john's wort	
6	honeysuckle	non-native
7	Canada anemone	
8	beebalm	
9	mountain mint	
10	NE aster	magenta version
11	great blue lobelia	
12	fleabane	
13	heather	non-native
14	joe-pye weed	
15	prairie smoke	
16	cardinal	
17	false blue indigo	
18	new Jersey Tea	
1 9	wild geranium	
20	bush honeysuckle	
21	goat's beard	
22	little joe-pye	
23	bugbane	
24	foamflower	
25	heart-leaved aster	
26	red lobelia	likely non-native
27	joe-pye / E.maculatum	

Photo: Site supervisor.



Map: Location of Champlain Park, Kitchissippi.



3. Impacts

The mound method for creating a suitable planting environment compares very favourably with the past practice of digging a hole in the rocky ground and adding soil before planting. However, evaluation of the effectiveness of the planting strategy cannot happen until all plants have gone through a full year of growth (September, 2021). We can nevertheless report that trees established in the spring of 2020 through the mounding method thrived until the fall, and that saplings established during late summer were regularly watered and have a good chance of surviving the winter. The plants introduced into the pollinator garden were healthy at the end of the season and well protected with leaf litter.

If the plants survive and thrive, the expected environmental benefits of the project are threefold. First, native plant biodiversity will have been established in previously degraded patches of public woodlands, thereby providing new habitat better suited to native insects, birds and small mammals. Second, the medium and long term potential of the woodlands for carbon sequestration will have been enhanced while providing scope for the development of native ground cover and protective tree canopy. Third, seed sources of native species will have been established, thereby creating a launching pad for the natural spread of native species and positive competition in response to non-native, invasive plants in the area. More broadly, the patches of new native plants may help break the cycle of arrested succession, at least around the three locations.

Community response to the project has been very positive. In addition to the 18 volunteers directly involved in creating and planting the mounds, a half dozen other residents transported leaves to the site from their yards and brought in stones to help reinforce the slopes of the pollinator garden mound. The pollinator garden mound is the most visible of the three project activities, and has resulted in many positive comments about efforts to bring biodiversity into the woodlands and connect the City park to the nearby Ottawa River. There is also a lot of excitement and anticipation among residents about the future look and feel of the pollinator garden and treed areas.