



Black Creek Pioneer Village North

Terrestrial Biological Inventory
and Assessment

June, 2010



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1.0 Introduction

In 2010 the Toronto Region Conservation Authority (TRCA) conducted a terrestrial biological inventory of the Black Creek Pioneer Village (BCPV) North Area. The study area is located in the southern half of the Humber watershed in the City of Vaughan. It covers the area that runs between Steeles Ave. to the south and the railway line to the north and bounded on the eastern edge by Jane St. as shown in Map 1.

This biological inventory will help to inform various management activities that are scheduled on the property including the EA for the placement of the SWM Pond for proposed development of the lands east of Jane St. as well as the Master Plan for BCPV North that is scheduled to be completed during 2010.

2.0 Inventory Methodology

A terrestrial biological inventory of the Black Creek Pioneer Village North property was initially conducted in 2002 with an update completed in 2010. Inventories covered vegetation communities and species (flora and fauna) according to the TRCA methodology for field data collection (TRCA 2007).

2.1 Ranking and Scoring Communities and Species

A key component of the ground-truthing surveys is the scoring and ranking of vegetation communities and flora and fauna species to generate local “L” ranks (L1 to L5), which were first assigned in 1996-2000. These are reviewed and updated annually based on the most recent data collected (TRCA 2010). Vegetation community scores and ranks are based on two criteria: *local occurrence* and the number of *geophysical requirements* or factors on which they depend. Flora species are scored using four criteria: *local occurrence*, *population trend*, *habitat dependence*, and *sensitivity to impacts associated with development*. Fauna species are scored based on seven criteria: *local occurrence*, *local population trend*, *continent-wide population trend*, *habitat dependence*, *sensitivity to development*, *area-sensitivity*, and *patch isolation sensitivity*. With the use of this ranking system, communities or species of *regional concern*, ranked L1 to L3, now replace the idea of *rare* communities or species. *Rarity (local occurrence)* is still considered but is now one of many criteria that make up the L-ranks, making it possible to recognize communities or species of regional concern before they have become rare. The various criteria used to rank each species identify the factors that need to be considered for the protection and management of the species.

In addition to the L1 to L3 ranked species, a large number of currently common or secure species at the regional level are considered of concern in the urban context. These are the species identified with an “L” rank of L4. Although L4 species are widespread and frequently occur in relatively intact urban sites, they are vulnerable to long-term declines. These species typically represent the “best” or most sensitive in urban areas.

2.2 Field Work

Vegetation communities and flora species were surveyed concurrently. Botanical field-work for the site was conducted in 2002 and 2010 (Table 1). Vegetation community designations were based on the Ecological Land Classification (ELC) and determined to the level of vegetation type (Lee *et al.* 1998). Community boundaries were outlined onto printouts of 2007 digital ortho-rectified photographs (ortho-photos) to a scale of 1:2000 and then digitized in ArcView. Flora regional and urban species of concern (species ranked L1 to L4) were mapped as point data with approximate number of individuals seen.

Fauna data were collected by the TRCA in June of 2002 and 2010 (Table 1). The summer surveys were concerned primarily with the mapping of breeding bird species of regional concern. Songbirds are surveyed in June/July in order to obtain breeding bird data and to exclude migrants. The methodology for identifying confirmed and possible breeding birds follows Cadman *et al.* (2007). Fauna species of regional and urban concern (species ranked L1 to L4) were mapped as point data with each point representing a possible breeding bird.

Table 1: Schedule of the TRCA biological surveys at BCPV North

Survey Item	Survey Dates	Survey Effort (hours)
Vegetation Communities and Flora Species	29 th July 2002, 4 th and 28 th May and June 8 th 2010	21 hours
Breeding Songbirds	24 th June 2002, 25 th May and June 9 th , 11 th and 15 th 2010	12 hours

3.0 Results and Discussion

3.1 Vegetation Community Representation

A total of 13 different ELC vegetation community types were described for the site (listed in Appendix 1). There were seven forest communities (one natural forest, six plantations), one woodland community and one native savannah, one aquatic community, and two meadows. One plantation and one deciduous forest community were recorded solely as inclusions within other communities. Many of the communities are present only as small fragments.

The vegetation communities that occur in the TRCA jurisdiction are scored and given a local rank from L1 to L5 based on the two criteria mentioned in Section 2. Vegetation communities with a rank of L1 to L3 are considered of regional concern in the jurisdiction while L4 communities are considered of concern in the urban portion of the jurisdiction. Only one vegetation community is listed as of regional concern – the Pondweed Mixed Shallow Aquatic (SAM1-4) community that has become established in the stormwater pond – which is ranked L3. This vegetation community is somewhat restricted in its distribution across the region and therefore has been given this

designation of being of regional concern. None of the other communities described are of concern regionally or within an urban environment.

3.2 Flora Species Representation

BCPV North had a total of 177 species of vascular plants recorded during the 2002 and 2010 inventory including 14 planted species (Appendix 2). Fifty-nine of the species listed in Appendix 2 were found in 2002 by TRCA during an inventory however they were not seen in 2010. Many of the species not found are considered to be later flowering species and therefore it is not surprising that they were not seen early in June of 2010. It is assumed that they are still present on site.

Flora species are of concern in the urban parts of the TRCA jurisdiction if they rank L1 to L4 based on their scores for the four criteria mentioned in Section 2.0. Most flora species of concern are not rare plants *per se*, since few of them rank as provincially rare (S1 to S3); however, they are of conservation concern due to their sensitivity to development and restriction to certain habitats or certain areas within the TRCA region (Map 3).

A total of five species of regional concern were observed however, only one of these (ranked L3) is believed to have not been planted; leafy pondweed (*Potamogeton foliosus*). The other four species have been planted (hybrid swamp maple, *Acer x freemanii*; silky dogwood, *Cornus amomum ssp. oblique*; white spruce, *Picea glauca*; and red pine, *Pinus resinosa*). As listed in Table 2, a further 16 species that are considered of concern in an urban environment (ranked L4) were observed. Twelve of these are believed to be naturally occurring while the four tree species are believed to have been planted.

Table 2: Status of planted versus naturally occurring flora species of regional and urban concern status at BCPV North

Scientific Name	Common Name	L - Rank	Naturally Occurring	Planted
<i>Pinus resinosa</i>	red pine	L2		X
<i>Picea glauca</i>	white spruce	L3		X
<i>Acer x freemanii</i>	hybrid swamp maple	L3		X
<i>Cornus amomum ssp. obliqua</i>	silky dogwood	L3		X
<i>Potamogeton foliosus</i>	leafy pondweed	L3	X	
<i>Apocynum androsaemifolium</i>	spreading dogbane	L4	X	
<i>Rudbeckia hirta</i>	black-eyed Susan	L4	X	
<i>Polygonatum pubescens</i>	downy Solomon's seal	L4	X	
<i>Glyceria grandis</i>	tall manna grass	L4	X	
<i>Crataegus macracantha</i>	long-spined hawthorn	L4	X	
<i>Populus x jackii</i>	Jack's poplar	L4	X	
<i>Typha latifolia</i>	broad-leaved cattail	L4	X	
<i>Sagittaria latifolia</i>	common arrowhead	L4	X	
<i>Scripus microcarpus</i>	barber-pole bulrush	L4	X	
<i>Scirpus validus</i>	soft-stemmed bulrush	L4	X	
<i>Quercus macrocarpa</i>	bur oak	L4	X	
<i>Quercus rubra</i>	red oak	L4	X	
<i>Acer saccharinum</i>	silver maple	L4		X
<i>Thuja occidentalis</i>	white cedar	L4		X
<i>Pinus strobus</i>	white pine	L4		X
<i>Populus grandidentata</i>	large-toothed aspen	L4		X

Although BCPV North is highly urbanized, all but one of the sixteen flora species of concern shows at least some sensitivity to development, with a score of three to five points (Appendix 2). This score assesses the vulnerability of plant species to impacts of adjacent urbanization or other anthropogenic disturbances.

Invasive Species

Invasive, non-native flora species are from another geographical region that out-compete and displace native species. More than half of the non-planted species (94 species or 54% of the total) are exotic. This reflects the highly disturbed, urban character of the site. Serious invasives such as dog-strangling vine (*Cynanchum rossicum*) were found mainly along the north and south hedgerows in the north-east corner of the site that borders the open meadow. As this species was not seen in the woodlots to the south it may be that this is a newer invasion to this area and is just starting to get established. Garlic mustard (*Alliaria petiolata*) however, was found throughout the floodplain forest and is quite extensive but is also still not present in the woodlots along the eastern side of the study area along Jane St. Black locust (*Robinia pseudoacacia*) and shrub honeysuckle (*Lonicera x bella*) are also present on the site.

3.3 Fauna Species Representation

The TRCA fauna surveys at Black Creek Pioneer Village North documented a total of 27 bird species, 3 mammal species, and 1 herpetofauna species. In addition, there was an incidental observation of a snapping turtle (*Chelydra serpentina serpentina*) made in 2004 but could not be relocated during the surveys in 2010. Including this incidental observation, the total number of possible breeding vertebrate fauna species for the site is 32 species. This total is very similar to vertebrate fauna totals from other similarly sized urban sites inventoried by the TRCA.

Fauna species are of concern in the urban part of the jurisdiction if they rank L1 to L4 based on their scores for the seven criteria mentioned in Section 2. Two species of regional conservation concern (L1 to L3) were observed; the L2 ranked snapping turtle and the L3 ranked brown thrasher (*Toxostoma rufum*) that nests primarily along forest edges. There were a total of six L4 ranked bird species which included three species that are forest dependent. This included the eastern screech owl (*Otus asio*), red-breasted nuthatch (*Sitta canadensis*), and red-eyed vireo (*Vireo olivaceus*). There was one meadow dependent species, eastern kingbird (*Tyrannus tyrannus*) along with two species that are more generalist in their habitat selection (northern flicker, *Colaptes auratus*; and gray catbird, *Dumetella carolinensis*). There were also two mammal species of urban concern (ranked L4); eastern cottontail, *Sylvilagus floridanus*; and white-tailed deer (*Odocoileus virginianus*). In addition, there was the one L4 ranked herpetofauna American toad (*Bufo americanus*). Thus the total number of fauna species of regional and urban concern at the site is 11. Locations of these breeding fauna are depicted on Map 3.

The TRCA inventories do not survey for invertebrate species however, incidental observations were that there were a high number of dragonflies and damselflies using the existing stormwater pond.

4.0 Highlights and Recommendations

4.1 Site Highlights

- Thirteen flora species of regional and urban concern are naturally occurring on site
- 54% of all flora species identified on site are non-native species
- Planted deciduous woodlots along the southeast corner of the study area are of good quality with little invasive species present
- Eleven fauna species of regional and urban concern were identified as possibly breeding on the site
- Incidental observation of snapping turtle was seen in 2004 but was not relocated during the inventories of 2010

Optimize Patch Size & Shape

The larger a habitat block, the more resilient the associated fauna and flora communities are to developments within the landscape or to increased user pressure. Certainly, by increasing the extent of natural cover at BCPV North, more opportunities will be created for nesting and foraging birds and other fauna species.

Specific recommendations:

- Reforest the open areas along the river at the north end of the site, directly east of the stormwater pond and the area to the south of the stormwater pond that is currently a meadow community (CUM1-b). This will improve the shape and the size of the habitat patch which will provide a more robust natural heritage system and therefore be better able to provide various functions in an urban setting. Native species such as eastern white cedar (*Tsuga canadensis*), silver maple (*Acer saccharinum*), black walnut (*Juglans nigra*) and native shrub species such as red-osier dogwood (*Cornus stolonifera*) may be appropriate to plant in these locations.
- Opportunities to create wetland habitat should be explored as this habitat type is lacking in urban environments. The current stormwater pond has been providing some wetland habitat function such as breeding area for dragonflies and a feeding area for bird species such as great-blue heron (*Ardea herodias*). As stormwater ponds are not meant to be habitat for wildlife it would be important to provide this type of vegetation community on site. Possibly the most obvious location for this would be in the north-east corner of the study area that is currently a meadow. If soil conditions were appropriate along the western half of the meadow, a wetland creation plan should be developed. Wetland communities should not be developed close to Jane St. however, to ensure that turtle species are not at risk of being hit while looking for nesting opportunities.

Improve Habitat Quality

Several different invasive plant populations at BCPV North are relatively large for some species. Unfortunately, they are in locations that place the natural habitats at risk. Control measures should be applied strategically as follows:

- The patches of DSV along the hedgerows to the north and south of the meadow (CUM1-A) in the north eastern corner of the study area should be removed while it is still relatively small and restricted. TRCA observations seem to indicate that the plant is still localized. Control of dog-strangling vine is labour-intensive, and involves spot applications of herbicide, either sprayed or applied by wick, repeated as needed (TRCA, 2008).
- Garlic mustard is difficult to control because of its very long-lived seed bank. Fortunately, there are promising signs of biological control, including a weevil already present in southern Ontario that is adapting to it (Yates, 2009). It is therefore suggested that no removal program be put in place at this location. However, this species has not been

found in the higher quality forests along the eastern side of the study area and proactive plantings to possibly prevent the spread of the garlic mustard into these areas would be appropriate. It is recommended that ground layer plantings of robust native species such as May-apple (*Podophyllum peltatum*), bloodroot (*Sanguinaria canadensis*), Jack-in-the-pulpit (*Arisaema triphyllum*), Virginia waterleaf (*Hydrophyllum virginianum*) and forest sedges such as common wood sedge (*Carex blanda*), curly-styled sedge (*Carex rosea*), and early-flowering sedge (*Carex pedunculata*) would be suitable at this location. As part of a long-term management strategy, monitoring of these woodlots to determine if new plantings were able to hold back invasive species spread would be important. Annual monitoring would be appropriate in order to be able to act quickly if invasive species were detected.

- There are small amounts of an invasive honeysuckle (*Lonicera x bella*) present in the southern most woodlot (CUP1-A) which should be removed.
- By ensuring several microhabitat characteristics on site, many of the L4 ranked fauna species will be able to continue to thrive on site. Species such as the eastern screech owl require mature cavity trees for nesting and species such as the red-breasted nuthatch require dead standing trees. The gray catbird, which presently seems to be doing quite well on site with six birds on breeding territory, require a lower storey of vegetation consisting of vines and shrubs.

Improve Connectivity to Nearby Habitat

Given the site's situation on the Black Creek as part of the larger Humber River – a natural corridor north to south across the huge urban area of the City of Toronto – the site has the potential to be of significance to migrating birds. There is unlikely to be any significant change in the matrix influence impacting the natural habitats at this site and therefore the absence of important ground-nesting fauna elements is unlikely to change. However, transient populations of migrant species are far less likely to be profoundly effected by such matrix disturbances since in many cases the disturbed fauna will simply move on to less disturbed areas within the habitat patch or elsewhere in the corridor. Of course, such disturbance needs still to be kept to a minimum since undisturbed foraging is of considerable importance to migrating birds.

Specific Recommendations:

- Enhance the foraging and shelter options on the site to improve the potential use by migrating song-birds. Dense stands of native fruiting shrubs will serve the large numbers of migrants which use the Black Creek as a corridor, north in the spring and south in the fall.

5.0 References

- Cadman M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.), 2007. ***Atlas of the Breeding Birds of Ontario, 2001 – 2005***. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706pp.
- Lee H., Bakowsky W.D., Riley J., Bowles J., Puddister M., Uhlig P. and McMurray S. 1998. ***Ecological land classification for southern Ontario: first approximation and its application***. Peterborough, Ontario: Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch.
- TRCA 2007. ***Terrestrial Natural Heritage Program Data Collection Methodology***. Toronto Region Conservation Authority.
- TRCA 2008. ***Dog-strangling vine – Cynanchum rossicum (Kleopow) Borhidi: a review of distribution, ecology and control of this invasive plant***. Toronto and Region Conservation Authority.
- TRCA 2010. ***Vegetation Community and Species Ranking and Scoring method***. Toronto Region Conservation Authority.



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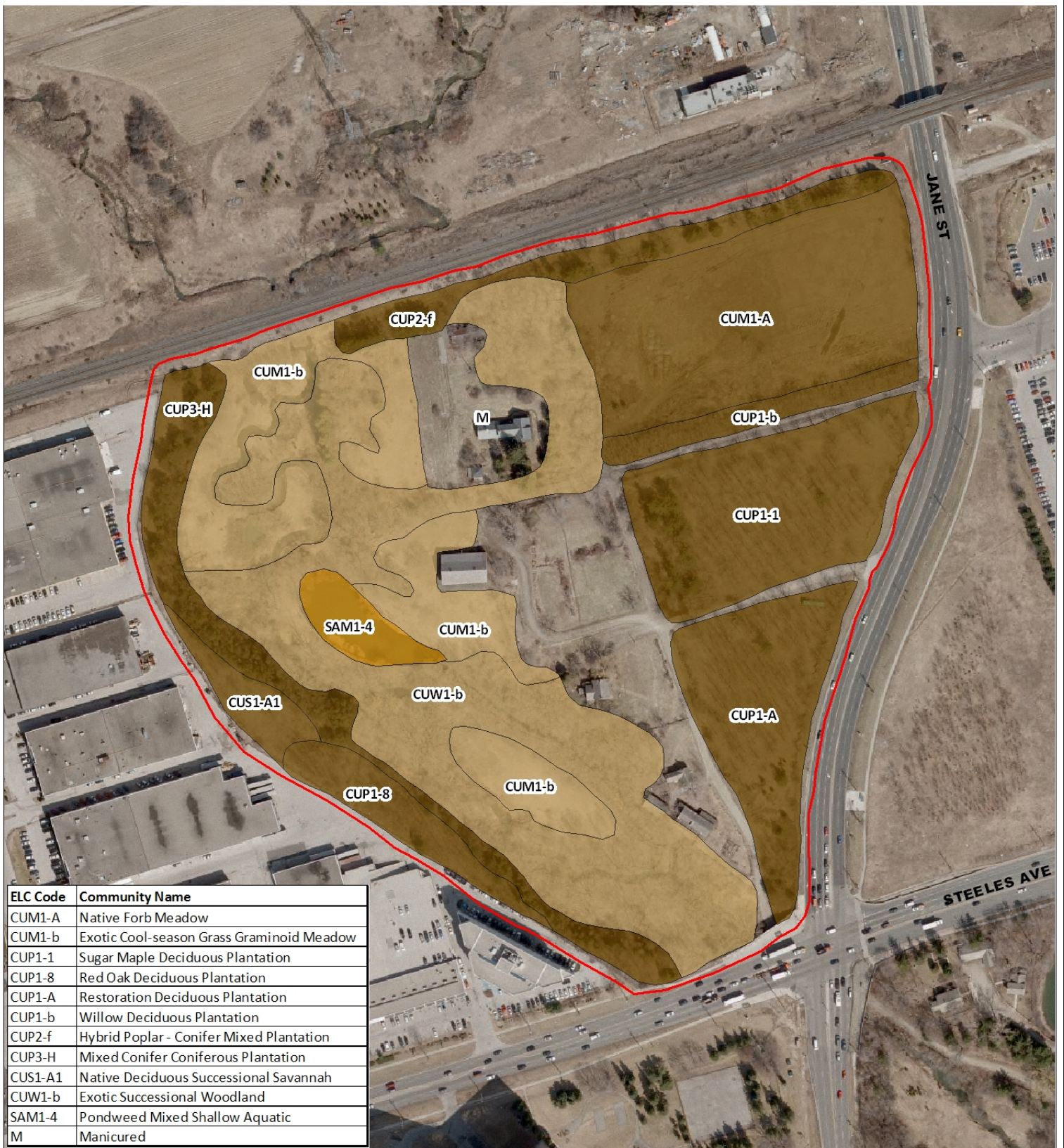
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Meters

Date: June 2010
Orthophoto: Spring 2009, First Base
Solutions Inc.

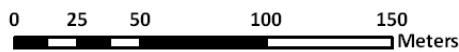
Map 1: Black Creek Pioneer Village North Study Area

Legend

 Study Area

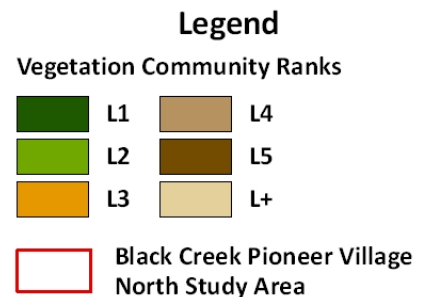


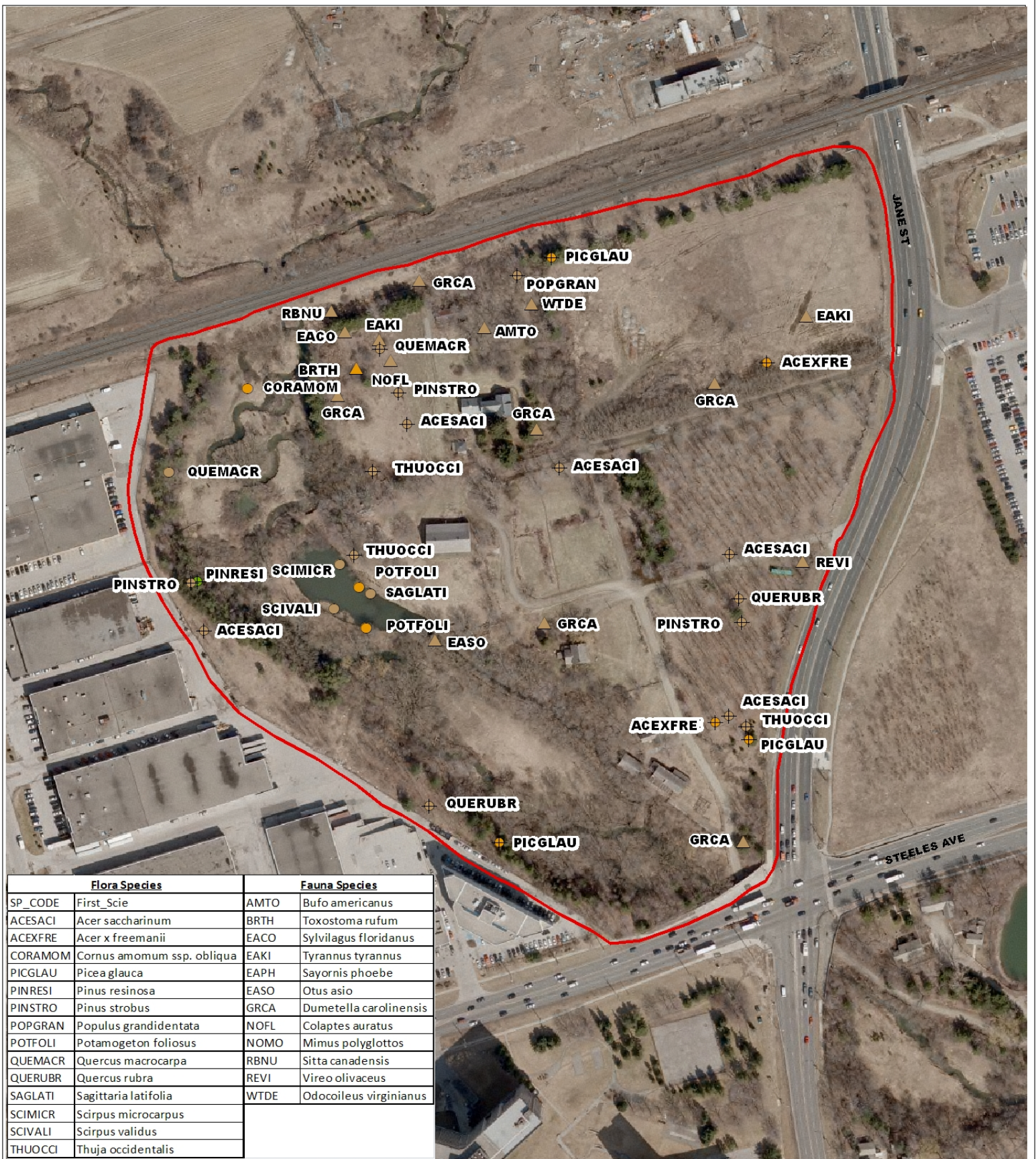
ELC Code	Community Name
CUM1-A	Native Forb Meadow
CUM1-b	Exotic Cool-season Grass Graminoid Meadow
CUP1-1	Sugar Maple Deciduous Plantation
CUP1-8	Red Oak Deciduous Plantation
CUP1-A	Restoration Deciduous Plantation
CUP1-b	Willow Deciduous Plantation
CUP2-f	Hybrid Poplar - Conifer Mixed Plantation
CUP3-H	Mixed Conifer Coniferous Plantation
CUS1-A1	Native Deciduous Successional Savannah
CUW1-b	Exotic Successional Woodland
SAM1-4	Pondweed Mixed Shallow Aquatic
M	Manicured



Date: June 2010
 Orthophoto: Spring 2009, First Base Solutions Inc.

Map 2: Vegetation Communities with their Associated Local Ranks





Flora Species		Fauna Species	
SP_CODE	First_Scie		
ACESACI	Acer saccharinum	AMTO	Bufo americanus
ACEXFRE	Acer x freemanii	BRTH	Toxostoma rufum
CORAMOM	Cornus amomom ssp. obliqua	EACO	Sylvilagus floridanus
PICGLAU	Picea glauca	EAKI	Tyrannus tyrannus
PINRESI	Pinus resinosa	EAPH	Sayornis phoebe
PINSTRO	Pinus strobus	EASO	Otus asio
POPGRAN	Populus grandidentata	GRCA	Dumetella carolinensis
POTFOLI	Potamogeton foliosus	NOFL	Colaptes auratus
QUEMACR	Quercus macrocarpa	NOMO	Mimus polyglottos
QUERUBR	Quercus rubra	RBNU	Sitta canadensis
SAGLATI	Sagittaria latifolia	REVI	Vireo olivaceus
SCIMICR	Scirpus microcarpus	WTDE	Odocoileus virginianus
SCIVALI	Scirpus validus		
THUOCCI	Thuja occidentalis		



Date: June 2010
 Orthophoto: Spring 2009, First Base Solutions Inc.

Map 3: Location of Flora & Fauna Species of Concern

Legend		
Flora Species of Concern (L1-L4)	Planted Flora Species of Concern (L1-L4)	Fauna Species of Concern
● L1	◆ L1	▲ L1
● L2	◆ L2	▲ L2
● L3	◆ L3	▲ L3
● L4	◆ L4	▲ L4
Black Creek Pioneer Village North Study Area		

Appendix 1: List of Vegetation Communities at BCPV North

ELC Code	Vegetation Type (* indicates present as inclusion and/or complex only)	Tot. area # ha	Scores			Local Rank (2010-04)
			Local Occurrence	Geophysical Requirments	Total Score	
Forest						
FOD8-1	Fresh-Moist Poplar Deciduous Forest*	*	1.0	0.0	1.0	L5
CUP1-1	Sugar Maple Deciduous Plantation		4.0	0.0	4.0	L5
CUP1-8	Red Oak Deciduous Plantation		3.5	0.0	3.5	L5
CUP1-A	Restoration Deciduous Plantation		2.5	0.0	2.5	L5
CUP1-b	Willow Deciduous Plantation		3.5	0.0	3.5	L5
CUP2-f	Hybrid Poplar - Conifer Mixed Plantation		3.5	0.0	3.5	L5
CUP3-2	White Pine Coniferous Plantation*	*	1.5	0.0	1.5	L5
CUP3-H	Mixed Conifer Coniferous Plantation		1.5	0.0	1.5	L5
Successional						
CUS1-A1	Native Deciduous Successional Savannah		1.5	0.0	1.5	L5
CUW1-b	Exotic Successional Woodland		1.5	0.0	1.5	L+
Aquatic						
SAM1-4	Pondweed Mixed Shallow Aquatic		3.0	2.0	5.0	L3
Meadow						
CUM1-A	Native Forb Meadow		1.5	0.0	1.5	L5
CUM1-b	Exotic Cool-season Grass Graminoid Meadow		1.0	0.0	1.0	L+

Appendix 2: List of Flora Species at BCPV North

xp - species was planted		Local	Popn.	Hab.	Sens.	Total	Rank		
cf - positive identification was not available		Occur.	Trend	Dep.	Dev.	Score	TRCA		
Scientific Name	Common Name	1-5	1-5	0-5	0-5	2-20	(03/2009)	Species Observed in 2010	Species Observed in 2002 but not 2010
<i>Bidens frondosus</i>	common beggar's-ticks	2	1	4	0	7	L5	cf	
<i>Rhus radicans</i> ssp. <i>rydbergii</i>	poison ivy (shrub form)	2	2	0	2	6	L5	x	
<i>Rhus typhina</i>	staghorn sumach	2	1	2	2	7	L5	x	
<i>Asclepias syriaca</i>	common milkweed	2	2	0	2	6	L5	x	
<i>Aster ericoides</i> ssp. <i>ericoides</i>	heath aster	2	1	2	1	6	L5	x	
<i>Aster lanceolatus</i> ssp. <i>lanceolatus</i>	panicled aster	1	2	3	1	7	L5	x	
<i>Aster novae-angliae</i>	New England aster	1	2	2	1	6	L5	x	
<i>Erigeron annuus</i>	daisy fleabane	2	2	0	1	5	L5	x	
<i>Erigeron philadelphicus</i> ssp. <i>philadelphicus</i>	Philadelphia fleabane	2	2	0	1	5	L5	x	
<i>Eupatorium maculatum</i> ssp. <i>maculatum</i>	spotted Joe-Pye weed	2	2	3	3	10	L5	x	
<i>Solidago altissima</i>	tall goldenrod	1	2	0	0	3	L5	x	
<i>Solidago gigantea</i>	late goldenrod	2	1	1	1	5	L5	x	
<i>Impatiens capensis</i>	orange touch-me-not	1	2	0	2	5	L5	x	
<i>Sambucus canadensis</i>	common elderberry	2	3	2	2	9	L5	x	
<i>Viburnum lentago</i>	nannyberry	2	3	1	2	8	L5	x	
<i>Cornus alternifolia</i>	alternate-leaved dogwood	2	2	1	2	7	L5	x	
<i>Cornus stolonifera</i>	red osier dogwood	1	2	0	3	6	L5	x	
<i>Echinocystis lobata</i>	wild cucumber	2	2	3	1	8	L5	x	
<i>Carex blanda</i>	common wood sedge	2	2	1	2	7	L5	x	
<i>Equisetum arvense</i>	field horsetail	1	2	1	1	5	L5	x	
<i>Ribes cynosbati</i>	prickly gooseberry	2	3	2	2	9	L5	x	
<i>Juglans nigra</i>	black walnut	2	1	2	1	6	L5	x	
<i>Juncus dudleyi</i>	Dudley's rush	2	2	3	1	8	L5	x	
<i>Fraxinus americana</i>	white ash	1	2	0	3	6	L5	x	
<i>Circaea lutetiana</i> ssp. <i>canadensis</i>	enchanter's nightshade	2	1	1	1	5	L5	x	
<i>Oxalis stricta</i>	common yellow wood-sorrel	3	1	1	1	6	L5	x	
<i>Lysimachia ciliata</i>	fringed loosestrife	2	2	2	2	8	L5	x	
<i>Anemone canadensis</i>	Canada anemone	2	2	2	2	8	L5	x	
<i>Agrimonia gryposepala</i>	agrimony	2	2	0	2	6	L5	x	
<i>Fragaria vesca</i> ssp. <i>americana</i>	woodland strawberry	3	2	2	2	9	L5	x	
<i>Fragaria virginiana</i>	wild strawberry	2	2	0	2	6	L5	x	
<i>Geum canadense</i>	white avens	2	2	1	2	7	L5	x	
<i>Prunus virginiana</i> ssp. <i>virginiana</i>	choke cherry	1	2	0	1	4	L5	x	
<i>Rubus occidentalis</i>	wild black raspberry	2	1	0	1	4	L5	x	
<i>Tilia americana</i>	basswood	1	4	2	3	10	L5	x	
<i>Ulmus americana</i>	white elm	1	4	0	2	7	L5	x	
<i>Urtica dioica</i> ssp. <i>gracilis</i>	American stinging nettle	2	3	2	2	9	L5	x	

Appendix 2: List of Flora Species at BCPV North

xp - species was planted		Local	Popn.	Hab.	Sens.	Total	Rank		
cf - positive identification was not available		Occur.	Trend	Dep.	Dev.	Score	TRCA		
Scientific Name	Common Name	1-5	1-5	0-5	0-5	2-20	(03/2009)	Species Observed in 2010	Species Observed in 2002 but not 2010
<i>Bidens frondosus</i>	common beggar's-ticks	2	1	4	0	7	L5	cf	
<i>Viola sororia</i>	common blue violet	2	2	0	2	6	L5	x	
<i>Parthenocissus inserta</i>	thicket creeper	1	2	0	1	4	L5	x	
<i>Vitis riparia</i>	riverbank grape	1	1	0	0	2	L5	x	
<i>Sagittaria latifolia</i>	common arrowhead	1	2	5	4	12	L4	x	
<i>Scirpus microcarpus</i>	barber-pole bulrush	2	2	4	3	11	L4	x	
<i>Scirpus validus</i>	soft-stemmed bulrush	2	2	5	3	12	L4	x	
<i>Quercus macrocarpa</i>	bur oak	2	4	3	3	12	L4	x	
<i>Quercus rubra</i>	red oak	1	4	2	4	11	L4	x	
<i>Potamogeton foliosus</i>	leafy pondweed	2	3	5	4	14	L3	x	
<i>Acer negundo</i>	Manitoba maple	2	0	0	2	4	L+?	x	
<i>Geranium robertianum</i>	herb Robert	3				3	L+?	x	
<i>Phalaris arundinacea</i>	reed canary grass	3				3	L+?	x	
<i>Daucus carota</i>	Queen Anne's lace	3				3	L+	x	
<i>Pastinaca sativa</i>	wild parsnip	4				4	L+	x	
<i>Cynanchum nigrum</i>	black swallow-wort	5				5	L+	x	
<i>Arctium lappa</i>	great burdock	3				3	L+	x	
<i>Chrysanthemum leucanthemum</i>	ox-eye daisy	3				3	L+	x	
<i>Cirsium arvense</i>	creeping thistle	2				2	L+	x	
<i>Hieracium caespitosum</i> ssp. <i>caespitosum</i>	yellow hawkweed	3				3	L+	x	
<i>Inula helenium</i>	elecampane	3				3	L+	x	
<i>Taraxacum officinale</i>	dandelion	3				3	L+	x	
<i>Tragopogon dubius</i>	lemon-yellow goat's beard	3				3	L+	x	
<i>Myosotis scorpioides</i>	true forget-me-not	3				3	L+	x	
<i>Symphytum officinale</i> ssp. <i>officinale</i>	common comfrey	5				5	L+	x	
<i>Alliaria petiolata</i>	garlic mustard	2				2	L+	x	
<i>Barbarea vulgaris</i>	winter cress	3				3	L+	x	
<i>Hesperis matronalis</i>	dame's rocket	2				2	L+	x	
<i>Lonicera morrowii</i>	Morrow's honeysuckle	3				3	L+	x	
<i>Lonicera x bella</i>	shrub honeysuckle	3				3	L+	x	
<i>Viburnum opulus</i>	European highbush cranberry	3				3	L+	x	
<i>Stellaria graminea</i>	grass-leaved chickweed	4				4	L+	x	
<i>Hypericum perforatum</i>	common St. Johnswort	3				3	L+	x	
<i>Convolvulus arvensis</i>	field bindweed	4				4	L+	x	
<i>Dipsacus fullonum</i> ssp. <i>sylvestris</i>	teasel	4				4	L+	x	
<i>Lotus corniculatus</i>	bird's foot trefoil	3				3	L+	x	
<i>Medicago lupulina</i>	black medick	3				3	L+	x	

Appendix 2: List of Flora Species at BCPV North

xp - species was planted		Local	Popn.	Hab.	Sens.	Total	Rank		
cf - positive identification was not available		Occur.	Trend	Dep.	Dev.	Score	TRCA		
Scientific Name	Common Name	1-5	1-5	0-5	0-5	2-20	(03/2009)	Species Observed in 2010	Species Observed in 2002 but not 2010
<i>Bidens frondosus</i>	common beggar's-ticks	2	1	4	0	7	L5	cf	
<i>Robinia pseudoacacia</i>	black locust	3				3	L+	x	
<i>Vicia cracca</i>	cow vetch	3				3	L+	x	
<i>Ribes rubrum</i>	garden red currant	3				3	L+	x	
<i>Glechoma hederacea</i>	creeping Charlie	3				3	L+	x	
<i>Leonurus cardiaca</i> ssp. <i>cardiaca</i>	motherwort	3				3	L+	x	
<i>Lycopus europaeus</i>	European water-horehound	4				4	L+	x	
<i>Nepeta cataria</i>	catnip	3				3	L+	x	
<i>Lythrum salicaria</i>	purple loosestrife	3				3	L+	x	
<i>Syringa vulgaris</i>	common lilac	3				3	L+	x	
<i>Chelidonium majus</i>	celandine	3				3	L+	x	
<i>Plantago major</i>	common plantain	3				3	L+	x	
<i>Bromus inermis</i> ssp. <i>inermis</i>	smooth brome grass	3				3	L+	x	
<i>Dactylis glomerata</i>	orchard grass	3				3	L+	x	
<i>Festuca pratensis</i>	meadow fescue	3				3	L+	x	
<i>Festuca rubra</i> ssp. <i>rubra</i>	red fescue	3				3	L+	x	
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky blue grass	3				3	L+	x	
<i>Ranunculus acris</i>	tall buttercup	3				3	L+	x	
<i>Rhamnus cathartica</i>	common buckthorn	2				2	L+	x	
<i>Geum urbanum</i>	urban avens	3				3	L+	x	
<i>Malus pumila</i>	apple	2				2	L+	x	
<i>Potentilla recta</i>	sulphur cinquefoil	3				3	L+	x	
<i>Rosa multiflora</i>	multiflora rose	3				3	L+	x	
<i>Rubus idaeus</i> ssp. <i>idaeus</i>	garden red raspberry	5				5	L+	x	
<i>Galium verum</i>	yellow bedstraw	4				4	L+	x	
<i>Populus x canadensis</i>	Carolina poplar	5				5	L+	x	
<i>Salix x rubens</i>	European tree willow	3				3	L+	x	
<i>Salix x sepulcralis</i>	weeping willow	4				4	L+	x	
<i>Verbascum thapsus</i>	common mullein	3				3	L+	x	
<i>Solanum dulcamara</i>	bittersweet nightshade	3				3	L+	x	
<i>Acer saccharum</i> ssp. <i>saccharum</i>	sugar maple	1	3	0	2	6	L5	xp	
<i>Acer saccharinum</i>	silver maple	1	2	5	3	11	L4	xp	
<i>Thuja occidentalis</i>	white cedar	1	4	1	5	11	L4	xp	
<i>Pinus strobus</i>	white pine	1	4	3	4	12	L4	xp	
<i>Populus grandidentata</i>	large-toothed aspen	2	3	4	3	12	L4	xp	
<i>Acer x freemanii</i>	hybrid swamp maple	5	3	5	2	15	L3	xp	
<i>Cornus amomum</i> ssp. <i>obliqua</i>	silky dogwood	3	3	5	3	14	L3	xp	

Appendix 2: List of Flora Species at BCPV North

xp - species was planted		Local	Popn.	Hab.	Sens.	Total	Rank		
cf - positive identification was not available		Occur.	Trend	Dep.	Dev.	Score	TRCA		
Scientific Name	Common Name	1-5	1-5	0-5	0-5	2-20	(03/2009)	Species Observed in 2010	Species Observed in 2002 but not 2010
<i>Bidens frondosus</i>	common beggar's-ticks	2	1	4	0	7	L5	cf	
<i>Picea glauca</i>	white spruce	1	5	4	4	14	L3	xp	
<i>Pinus resinosa</i>	red pine	2	5	5	5	17	L2	xp	
<i>Acer platanoides</i>	Norway maple	3				3	L+	xp	
<i>Picea abies</i>	Norway spruce	5				5	L+	xp	
<i>Pinus nigra</i>	Austrian pine	5				5	L+	xp	
<i>Pinus sylvestris</i>	Scots pine	3				3	L+	xp	
<i>Prunus domestica</i> var. <i>domestica</i>	common plum	5				5	L+	xp	
<i>Achillea millefolium</i> ssp. <i>lanulosum</i>	woolly yarrow	2	2	0	1	5	L5		x
<i>Ambrosia artemisiifolia</i>	common ragweed	2	1	3	0	6	L5		x
<i>Euthamia graminifolia</i>	grass-leaved goldenrod	2	1	4	1	8	L5		x
<i>Sambucus racemosa</i> ssp. <i>pubens</i>	red-berried elder	2	3	2	2	9	L5		x
<i>Carex cristatella</i>	crested sedge	2	2	4	1	9	L5		x
<i>Carex vulpinoidea</i>	fox sedge	2	2	4	1	9	L5		x
<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>	ostrich fern	1	2	2	2	7	L5		x
<i>Onoclea sensibilis</i>	sensitive fern	2	3	1	3	9	L5		x
<i>Mentha arvensis</i> ssp. <i>borealis</i>	wild mint	2	2	3	2	9	L5		x
<i>Fraxinus pennsylvanica</i> var. <i>subintegerrima</i>	green ash	2	2	2	3	9	L5		x
<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	sticky willow-herb	2	2	2	2	8	L5		x
<i>Oenothera biennis</i>	common evening-primrose	2	1	1	1	5	L5		x
<i>Leersia oryzoides</i>	rice cut grass	2	2	3	2	9	L5		x
<i>Ranunculus abortivus</i>	kidney-leaved buttercup	2	3	1	2	8	L5		x
<i>Geum aleppicum</i>	yellow avens	2	3	3	2	10	L5		x
<i>Rubus allegheniensis</i>	common blackberry	2	3	0	1	6	L5		x
<i>Populus balsamifera</i> ssp. <i>balsamifera</i>	balsam poplar	1	2	3	2	8	L5		x
<i>Salix eriocephala</i>	narrow heart-leaved willow	2	1	3	1	7	L5		x
<i>Salix exigua</i>	sandbar willow	2	1	5	2	10	L5		x
<i>Verbena hastata</i>	blue vervain	2	2	4	2	10	L5		x
<i>Verbena urticifolia</i>	white vervain	2	2	2	2	8	L5		x
<i>Apocynum androsaemifolium</i>	spreading dogbane	2	3	2	4	11	L4		x
<i>Rudbeckia hirta</i>	black-eyed Susan	1	4	4	3	12	L4		x
<i>Polygonatum pubescens</i>	downy Solomon's seal	2	4	2	5	13	L4		x
<i>Glyceria grandis</i>	tall manna grass	2	3	4	2	11	L4		x
<i>Crataegus macracantha</i>	long-spined hawthorn	2	2	4	3	11	L4		x
<i>Populus x jackii</i>	Jack's poplar	5	2	4	1	12	L4		x
<i>Typha latifolia</i>	broad-leaved cattail	1	4	4	4	13	L4		x
<i>Prunella vulgaris</i>	heal-all	4				4	L+?		x

Appendix 3: List of Fauna Species at BCPV North

Common Name	Code	Scientific Name	LO	PTn	PTt	AS	PIS	HD	StD	+	TS	L-Rank
Survey Species: species for which the TRCA protocol effectively surveys.												
Birds												
brown thrasher	BRTH	<i>Toxostoma rufum</i>	0	3	3	2	2	1	4	0	15	L3
eastern kingbird	EAKI	<i>Tyrannus tyrannus</i>	0	4	2	2	1	1	3	0	13	L4
eastern screech-owl	EASO	<i>Otus asio</i>	0	2	2	1	2	3	3	0	13	L4
grey catbird	GRCA	<i>Dumetella carolinensis</i>	0	2	2	1	1	1	3	0	10	L4
northern flicker	NOFL	<i>Colaptes auratus</i>	0	3	2	1	1	2	3	0	12	L4
red-breasted nuthatch	RBNU	<i>Sitta canadensis</i>	0	1	2	3	1	1	2	0	10	L4
red-eyed vireo	REVI	<i>Vireo olivaceus</i>	0	2	2	2	1	1	3	0	11	L4
American Crow	AMCR	<i>Corvus brachyrhynchos</i>	0	1	2	1	1	0	0	0	5	L5
American goldfinch	AMGO	<i>Carduelis tristis</i>	0	2	2	1	1	0	1	0	7	L5
American robin	AMRO	<i>Turdus migratorius</i>	0	1	2	1	1	0	1	0	6	L5
Baltimore oriole	BAOR	<i>Icterus galbula</i>	0	2	2	1	1	0	1	0	7	L5
black-capped chickadee	BCCH	<i>Parus atricapillus</i>	0	1	2	1	1	0	1	0	6	L5
brown-headed cowbird	BHCO	<i>Molothrus ater</i>	0	2	2	1	1	0	1	0	7	L5
cedar waxwing	CEDW	<i>Bombycilla cedrorum</i>	0	1	2	1	1	0	1	0	6	L5
chipping sparrow	CHSP	<i>Spizella passerina</i>	0	2	2	1	1	0	2	0	8	L5
common grackle	COGR	<i>Quiscalus quiscula</i>	0	3	2	1	1	0	1	0	8	L5
downy woodpecker	DOWO	<i>Picoides pubescens</i>	0	3	2	1	1	1	1	0	9	L5
eastern phoebe	EAPH	<i>Sayornis phoebe</i>	0	2	2	1	1	2	1	0	9	L5
mourning dove	MODO	<i>Zenaida macroura</i>	0	2	2	1	1	0	0	0	6	L5
northern cardinal	NOCA	<i>Cardinalis cardinalis</i>	0	2	2	1	1	1	2	0	9	L5
red-tailed hawk	RTHA	<i>Buteo jamaicensis</i>	0	2	2	2	1	1	1	0	9	L5
red-winged blackbird	RWBL	<i>Agelaius phoeniceus</i>	0	2	2	1	1	0	2	0	8	L5
song sparrow	SOSP	<i>Melospiza melodia</i>	0	2	2	1	2	0	2	0	9	L5
warbling vireo	WAVI	<i>Vireo gilvus</i>	0	1	2	1	1	1	2	0	8	L5
yellow warbler	YWAR	<i>Dendroica petechia</i>	0	1	2	1	1	1	3	0	9	L5
northern mockingbird	NOMO	<i>Mimus polyglottos</i>	0	2	0	1	1	1	1	0	6	L5
European starling	EUST	<i>Sturnus vulgaris</i>										L+
Herpetofauna												
common snapping turtle	SNTU	<i>Chelydra serpentina serpentina</i>	2	3	3	1	5	2	5	2	23	L2
American toad	AMTO	<i>Bufo americanus</i>	0	3	2	1	4	0	4	0	14	L4

Appendix 3: List of Fauna Species at BCPV North

Common Name	Code	Scientific Name	LO	PTn	PTt	AS	PIS	HD	StD	+	TS	L-Rank
Incidental Species: species that are reported on as incidental to the TRCA protocol.												
Mammals												
eastern cottontail	EACO	<i>Sylvilagus floridanus</i>	0	2	2	1	3	1	2	0	11	L4
white-tailed deer	WTDE	<i>Odocoileus virginianus</i>	0	2	1	3	2	2	1	0	11	L4
raccoon	RACC	<i>Procyon lotor</i>	0	2	2	1	3	1	0	0	9	L5
LEGEND												
LO = local occurrence		PIS = Patch Isolation Sensitivity										
PTn = population trend, continent-wide		STD = sensitivity to development										
PTt = population trend, TRCA		+ = additional points										
HD = habitat dependence		TS = total score										
AS = area sensitivity		L-rank = TRCA Rank, October, 2008										