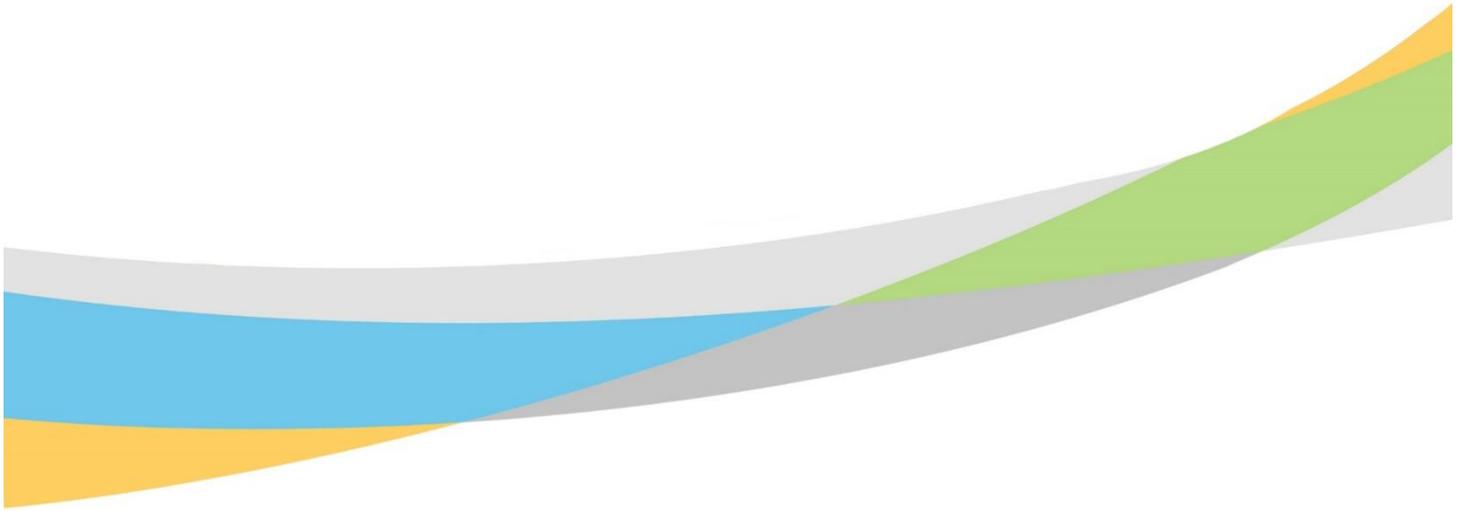


PLEASE NOTE:

This abbreviated version of the report focuses on the Introduction and Summary and Recommendations. The full report is available at: <https://trca.ca/conservation/environmental-monitoring/terrestrial-habitat-species/biological-inventories/>



High Park – Terrestrial Biological Inventory

Prepared by Environmental Monitoring and Data Management

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1.0 Introduction

In 2018 the Toronto and Region Conservation Authority (TRCA) conducted a biological inventory of High Park at the request of City of Toronto Parks and Forestry. The work was undertaken to update existing natural heritage information for the area, which is extensive (going back more than a century) but sporadic. This work involved partial flora and fauna inventories in 2008 and 2000 respectively by the TRCA. The natural system components assessed in 2018 were vegetation communities, vascular plants (flora), birds, and frogs. Incidental observations of other fauna were also recorded. The information is of value for site management planning: particularly the ongoing prescribed burns and other restoration work; and also for biodiversity assessment at a broader regional level.

This report summarizes the biological inventory findings to:

- Characterize the terrestrial natural heritage features of High Park
- Describe how the natural heritage features of High Park contribute to the regional Terrestrial Natural Heritage System (TNHS), and support regional biodiversity
- Outline the changes observed since the previous biological inventory
- Highlight the status and progress of restoration activities in the provincially-significant oak woodland and savannah communities that have been ongoing since the 1990s
- Assess any other current activities or processes that are beneficial with respect to protecting/ or enhancing the natural system
- Identify current risks to the quality of the habitat on the property and recommend actions to reduce or eliminate them

The primary question that the inventory addresses is:

“How does the area surveyed at The High Park Study Area fit within the regional natural heritage system, and how should its contribution to this system be protected and maximized?”

An important underlying message is that the integrity and health of the natural system are measured at the regional scale; individual sites must be considered in this larger system context.

1.1 The TRCA Terrestrial Natural Heritage Program

Rapid urban expansion in the TRCA jurisdiction has led to continuous and incremental loss of natural cover and species. In a landscape that probably supported 95% forest cover prior to European settlement, the most recent landscape analysis (2013) shows that only 17.8% forest (including successional) and wetland cover remains. Agricultural and natural lands are increasingly being urbanized while species continue to disappear from a landscape that is less able to support them. This represents a substantial loss of ecological health and ecosystem function that will be exacerbated in the future according to current urbanization trends. With the loss of natural cover, diminishing proportions of various natural vegetation communities and reduced

populations of native species remain. As additional stresses are exerted on the natural system many species become even rarer until they are lost, or at imminent risk of being lost. Reductions in the natural heritage system reduce biodiversity and the ecosystem services that sustain human society.

The important issue is the *cumulative* loss of natural cover in the TRCA region that has resulted from innumerable site-specific decisions.

In the late 1990s the TRCA initiated the Terrestrial Natural Heritage Program to address the loss of terrestrial biodiversity within the jurisdiction's nine watersheds. This work culminated in the Terrestrial Natural Heritage System Strategy (TNHSS) (TRCA 2007a), which was approved in 2008, and has been under implementation since that time. The aim is to protect elements of the natural system (vegetation communities, flora and fauna species) *before* they become rare, and to promote greater ecological function of the system as a whole. This proactive approach is needed; by the time a community or species has become rare, irreversible damage has already occurred. A healthy natural system capable of supporting regional biodiversity in the long term is the goal. Targets, both short and long-term (100 years), provide direction for planning at all scales (TRCA 2007a, TRCA 2007b).

The systems approach applied in TNHSS development incorporated data from a range of scales. Assessments of the components of biodiversity similarly consider multiple scales, ranging from the region as a whole, through the watersheds and smaller landscape habitat elements, to site level communities and species.

2.0 Study Area Description and History

High Park consists of 161 hectares of public land owned by the City of Toronto located along the Lake Ontario waterfront and partly within the lower reaches of the Humber River watershed in the City of Toronto (Map 1). The western part of the park drains into Wendigo Creek and Grenadier Pond (Map 2), the outflow of which has been diverted to the Humber since the transportation corridor was constructed across the lakeshore to the south (Varga 1989). The larger eastern part of the park is in the small watershed of Spring Creek which drains directly into Lake Ontario. It is bounded by Bloor Street West to the north, Parkside Drive to the east, The Queensway to the south and Ellis Park Road/Ellis Avenue/Grenadier Pond to the west. High Park is isolated from the nearest natural systems, namely the Humber Marshes to the west and some restored areas adjacent to Sunnyside Beach on the Lake Ontario Shoreline, due to it being entirely surrounded by established (>100 years old) urban development and transportation corridors. A partial exception is that there is a tenuous connection to Catfish Pond and its associated natural areas immediately to the west across Ellis Avenue, which has moderate traffic. The distance from Catfish Pond to the Humber Marshes is about 670 m. The vast majority of High Park (146.5 ha) was surveyed in 2018, with the exception of the south and west shores of Grenadier Pond.

The physiography of High Park shows it to be predominantly glaciolacustrine sand plain interrupted by several ravines. High Park is part of the Lake Iroquois sand plain; the specific section of the Lake Iroquois sand plain in West Toronto is very well-distinguished by its soils and vegetation and is known as the Humber Plains. Some of the sand plain grades into beveled till plain, especially in the south and east of the park. The two main ravines

are Wendigo Creek and Grenadier Pond to the west, and Spring Creek to the east. Spring Creek has several small tributary ravines entering it, mostly along the northeast and southwest parts of its course.

Grenadier Pond itself was originally a bay of Lake Ontario, separated from the lake by a narrow baymouth bar similar to the situation at Frenchman’s Bay in Pickering (Figure 1). The two smaller ponds at the south end of Spring Creek (Upper and Lower Duck Pond) were also originally part of the lagoon/coastal marsh complex.



Figure 1. Grenadier Pond in its original state with baymouth bar in the background. Artist W.T. Wood, date unknown (private collection: Gavin Miller).

The soils at High Park are mostly sandy loams, with some organic deposits in wetlands particularly at the north end of Grenadier Pond. Because the area has been so long urbanized, original soil survey information is limited. However, other areas of the Iroquois sand plain that have soil survey information are characterized by Fox Sandy Loam, a well-drained, dry fine sandy soil. Soil sampling done during field work confirmed the presence of intact original soils which fit the description of Fox Sandy Loam in most of High Park.

The park lies clearly within the Carolinian zone of southern Ontario, characterized on a broad scale by deciduous forest. Southern elements are prominent in High Park’s flora, but a few northern species from the Great Lakes – St. Lawrence mixed forest zone are associated with cool ravine slopes and seepage areas.

The history of High Park is relatively well-documented, and it is a major Toronto landmark.

5.0 Summary and Recommendations

The 161 ha High Park is located entirely within the urban landscape and consists of a combination of ravines, tableland, and ponds. Natural cover at this site is dominated by a combination of provincially-significant oak woodland and savannah; several types of forest, and small areas of wetland. As such it is a valuable contributor to the natural heritage system and biodiversity of the region. The site has the potential to maintain healthy populations of many flora and fauna Species of Regional and Urban Concern (minus ground- to low-nesting breeding bird species), and overall regional biodiversity. The extent to which this potential is realized is dependent upon the strategies used to manage public use, protect the integrity of the habitats that exist, and restore degraded or invaded habitats.

5.1 Site Summary

1. Although High Park does not rank highly within a regional context in terms of patch score, total size and matrix influence, it does stand out for the presence of interior forest, especially in such an established urbanized area. The interior forest areas are related to respectable patch shape scores with the majority of the habitat scored as “fair”, with “good” and “excellent” patches also present.
2. A total of 71 vegetation types was observed, largely forest, woodland and savannah; with smaller areas of wetland and successional areas. The site includes 34 forest, 11 dynamic (woodland and savannah; barren, bank), 9 successional, 2 riparian bank, 13 wetland, 3 aquatic, and 1 meadow vegetation community type. The community diversity reflects historical and current land-use practices of the site extending back before the time of European settlement.
3. Vegetation communities of conservation concern were concentrated on the ravine slopes and adjacent tableland. Oak forest, woodland, and savannah with a smaller amount of seepage wetland and aquatic communities are represented.
4. Woodland and savannah communities are concentrated on upper slopes and tableland. Forest is most evident in the ravines. Wetlands occur on seepage zones in the bottom of ravines and along pond shorelines.
5. A total of 549 naturally occurring flora species were observed. Among them were 75 Species of Regional Concern (ranked L1-L3) and 77 species of Urban Concern (ranked L4). Species of Concern were associated with all habitat types but the highest concentrations were in forest and woodland/savannah. However, even the manicured areas had some old oaks that pre-date development. Total native species richness is high despite the urban character of the site and its long history of recreational use and other disturbance. This attests to the effort put into preservation and restoration at High Park.
6. High Park’s history of disturbance has led to the extirpation of 100 L1-L3 flora species since the 1880s. Wetland and aquatic plants were particularly affected, with 48 historical species no longer present. Species of oak woodland and forest, especially mixed forest, have also been among those extirpated. Eleven species once found in High Park can no longer be found anywhere in TRCA.

7. Restoration efforts since the 1990s, especially in the oak woodland and savannah, have arrested and in some places reversed the decline in ecosystem quality and biodiversity. Flora species such as wild lupine and Canada hawkweed have experienced population rebounds; and 10 extirpated species were observed to be reintroduced in the 2018 survey.
8. The main disturbances affecting High Park at present are intensive trampling from park visitors and off-leash dogs in upland habitats, and storm water runoff in the wetlands and riparian areas causing nutrient loading and flash flooding. Other threats include storm damage to forests that are lacking native regeneration, insect outbreaks, and invasive species.
9. The main invasive plants in upland areas at High Park are Norway maple, winged euonymus, buckthorns, oriental bittersweet, Japanese hedge-parsley, and dog-strangling vine. There are also patches of garlic mustard, goutweed, lily-of-the-valley, and periwinkle. In lowland areas and wetlands, common reed has invaded shoreline marshes, while other low-lying areas have Himalayan balsam. Reed canary grass and purple loosestrife have local infestations. The City of Toronto has successfully reduced the occurrence of invasives, including dog-strangling vine, in the managed areas of oak woodland. However, large areas of the park have not been treated.
10. The fauna survey in 2018 reported 21 bird species, 6 herpetofauna, and 5 mammal species of Regional and Urban Concern for a total of 32 Species. Taking into consideration 6 additional records from 2009-2017 brings the 10 year total to 38 Species of Regional and Urban Concern.
11. A single ground- or low-nesting breeding bird species was recorded in 2018: spotted sandpiper. Common yellowthroat was recorded in 2012 to bring the 10-year total for this nesting guild to 2 species, both on single territories. The abundance of dogs-off leash found outside the fenced in dog park at Dog Hill may be contributing to the lack of ground nesting birds.
12. The regionally rare fauna species – Carolina wren and (possibly) big brown bat were recorded for the Study Area.
13. A total of three Species at Risk were recorded: wood thrush, eastern wood-pewee and common snapping turtle (all Special Concern).
14. A high abundance of blue-grey gnatcatcher, a Species of Urban Concern, was recorded on the site, with 18 territories observed. No previous records of this species had been documented at the Study Area.
15. The habitat on site is fragmented, with several access roads breaking it into interrupted patches. In addition, there are numerous trails and public use areas such as community garden plots and sports facilities, with the human footprint distributed throughout all parts of the site.
16. Intensification and infill development of the neighbourhoods around High Park is anticipated. It is a desirable location. This could exacerbate the user pressures on this already heavily visited park, unless there is careful planning. Uncontrolled recreational activities present a risk to the quality of the habitat in High Park. High participation rates increase the negative effects on habitats and species.

5.2 Site Recommendations

The recommendations address the objective of protecting regional biodiversity in the TRCA jurisdiction. In order to at least maintain, and preferably enhance, the current level of biodiversity at High Park, the overall integrity of the natural heritage system that includes this provincially-significant area must be protected. Therefore, at the landscape scale, in keeping with the TNHSS, connections to other natural habitat patches in the landscape need to be enhanced and maintained. Furthermore, the recommendations highlight the issues that occur with increasing public use of the site. Managing public use, strategic placement of interpretive signage, allowing healthy dynamic natural processes to proceed, and controlling invasive species will all aid in addressing the negative matrix influences that are occurring on the park.

The following recommendations address the above natural heritage concerns, with an emphasis upon bolstering the existing natural features on site. Thus, we recommend overall that 1) existing habitats and features be protected and enhanced; 2) that public use be managed; and 3) that invasive species be controlled.

1. Protect and Enhance Existing Features

The first priority could be to focus on ***maintaining conditions that allow existing communities or species of conservation concern to thrive***. A good goal would be ***to prevent any further extirpations*** of species of conservation concern.

- a. In order to maintain biodiversity at High Park, all aspects of the park need to be addressed in a unified fashion. An overarching program would include an up-to-date management plan addressing the park as a whole with its various uses. Management zones would be updated based on existing ELC and species data.
- b. Highlight the success of existing restoration work in the oak woodland and savannah habitats to secure ongoing support and expansion of the program.
- c. Expand the areas of restoration, including forest and wetland habitats.
- d. Areas selected for restoration should have soil and moisture assessments conducted in order to help determine suitable lists of species for planting. If soil conditions are suitable, consideration should be given to enhancing wetland features.
- e. Special attention should be directed toward protecting and propagating populations of the most locally-at-risk plant species. Examples include those in Table 8 that are only in High Park or one or two other locations.
- f. Continue the policy of planting only species historically known from High Park and the adjacent Humber Plains in park restoration projects, as recommended by Varga (2008). This will help to retain the unique character of High Park's ecosystems within the Toronto area.

- g. Seed collection should include acorns from pre-development relict trees in the surrounding neighbourhoods. Original black oaks are numerous in some West Toronto neighbourhoods.
- h. The native plant propagation program at the High Park Greenhouses could be enhanced through communication and collaboration with the TRCA nursery, the Toronto Botanical Garden, and possibly the Rouge National Urban Park (which also has areas of woodland habitat).
- i. In the longer term, efforts could be made to improve habitat connectivity across High Park, and between High Park and other natural areas. The most obvious linkage is south to the Lake Ontario waterfront, where the transportation infrastructure presents a formidable barrier but also where sizeable patches of natural habitat remain both north and south of the barrier.
- j. There is a “stepping stone” connection west across Catfish Pond to the Humber Marshes Provincially Significant Wetland Complex. Consideration should be given to including High Park’s wetlands (excluding storm water ponds) within this wetland complex. Several minor to moderate roads lie between Grenadier Pond and the Humber, but the distance between Humber Marshes and Catfish Pond lies within the 750 m threshold accepted for including wetland units within a single complex (OMNRF 2013). This, in addition the uplands being already designated an ANSI, may help gain support for protection and restoration of High Park’s ponds and wetlands.

2. Manage Public Use

High Park is nestled in a highly urbanized landscape and is therefore extremely influenced by urban matrix influences. Such influences negatively affect natural systems and the park has lost many of its original flora and fauna species since the 1880s. It seems unlikely that sensitive ground-nesting bird species will be able to thrive at the site. However, it is important to consider the significance of High Park’s waterfront location for dispersal and migration. Such urban habitats – especially those as extensive as High Park – feed and shelter significant numbers of migrating songbirds in both spring and fall, even though only very few of these birds stay to attempt nesting. At the Study Area, visitor pressure is currently high and is expected to increase. Strategies for managing human-use are needed if ecological health is to be maintained, or enhanced.

- a. Some areas should be left as refuges for flora and fauna with minimal access, especially Species of Concern; they are generally sensitive to human presence. Key habitats needing protection include the mixed and hardwood forests along Spring Creek as well as the oak woodland and savannah communities; these habitats support the more sensitive flora and fauna species (Maps 10, 11a, 13). Restricting the number and width of informal trails should help without affecting public enjoyment due to the high density of trails elsewhere within the park.
- b. Hikers and dog-walkers are intensive users of the site. The fenced dogs-off leash area on Dog Hill is well constructed and accommodates and manages many dogs, however many owners walk their dogs off-leash outside this designated area. Leash laws may need be enforced outside designated areas. Where off-leash dog use occurs (regardless of whether it is officially permitted or is not), there is a considerable risk of disturbance to low and ground-nesting birds and herpetofauna such as American toad and gartersnake in upland foraging habitats. Trampling has

also had a severe impact on the Spring Road Ravine, which has sensitive forest plants along the east side between Howard Pond and High Park Blvd (see Map 11a). Such disturbance would result in reduced abundance and possibly eventual extirpation of these species. If resources are limited for enforcement of leash laws, the patrols can be targeted in areas where there are high concentrations of L1-L3 species and communities.

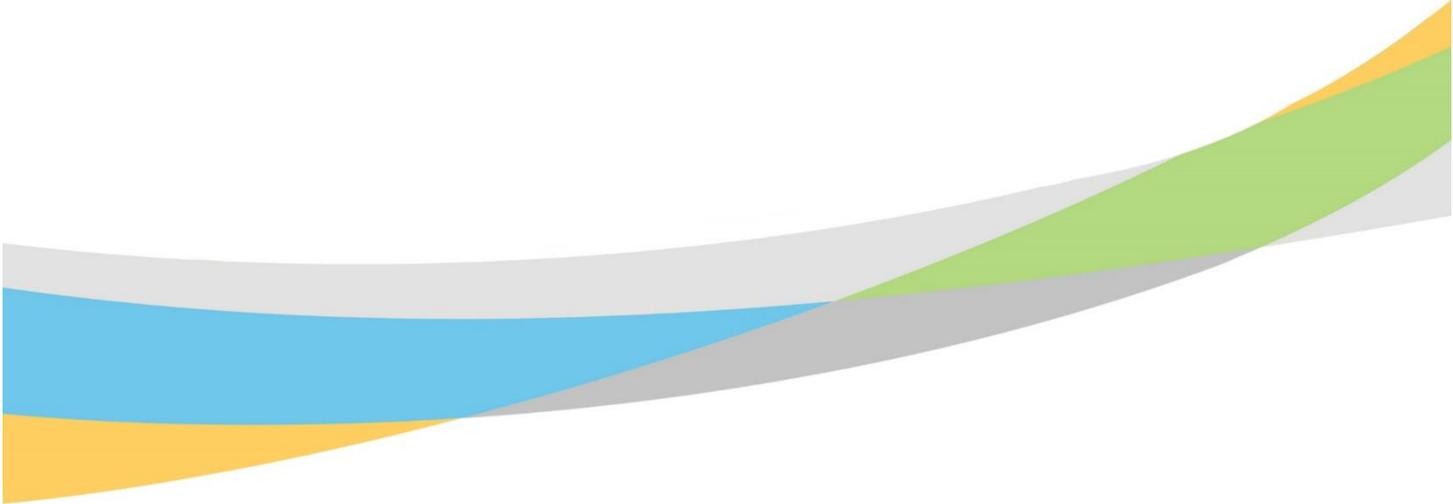
- c. Fences should be improved both in terms of security and aesthetics in places where they have deteriorated or been breached: for example, along the east side of Dog Hill and along Spring Road.
- d. High Park already has an impressive record of community involvement. Involving the local community in any restoration efforts at High Park will enhance a sense of good stewardship, which in turn will result in more ecologically positive behaviour, e.g. responsible gardening practices including proper disposal of yard waste; planting of native species adjacent to the site; removal of encroachments, and responsible dog-ownership.

3. Control Invasive Species

Several invasive plant species are threats to the native biodiversity at High Park. Some excellent work has already been done to address them in the oak woodlands, and work is starting on common reed at Grenadier Pond. ***It is essential that well-planned and realistic measures be undertaken to control invasive species.*** Management for invasive species will need to be tailored to the individual species in question, depending on how widespread and established they are.

- a. Take a proactive management approach to invasive species control. Pre-assess areas targeted for restoration plantings or trail installation and remove existing exotic populations. This would include local removal of dog-strangling vine, euonymus, Norway maple, common reed, and other species that are found throughout the site.
- b. The fragmentation of the site by roads can be used to advantage here. Isolated habitat patches once treated may have a slower rate of recolonization of invasives from adjacent patches.
- c. Newly-burned and planted areas will be particularly vulnerable to invasive species. An aggressive management plan will need to be implemented to prevent any planted areas from succumbing. Existing and proposed restoration sites, and their periphery, should be top priorities for removal.
- d. Any wetland features created or restored should be monitored for common reed and reed canary grass. Consider removing these and replant area with native wetland plants effective at out-competing their exotic counterparts such as sweet flag, Joe Pye weed (*Eutrochium maculatum*), Canada bluejoint, soft-stemmed bulrush (*Schoenoplectus tabernaemontani*), sedges (*Carex* spp) and soft rush (*Juncus effusus*).

- e. In addition to removal efforts, encourage public to adopt simple practices that would help limit further spread of invasive species. For example, encouraging adjacent landowners to substitute native or at least non-invasive ground covers in their back yards can prevent the spread of exotic species (e.g. periwinkle) while expanding the habitat of High Park, particularly for pollinators. Likewise, allotment gardeners should monitor their plots for any invasives that may show up.



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