



Toronto and Region  
**Conservation**  
Authority

## **Boyd Conservation Area Terrestrial Biological Inventory**

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## 1.0 INTRODUCTION

In 2021, the Terrestrial Inventories and Monitoring group of Toronto and Region Conservation Authority (TRCA) conducted a terrestrial biological inventory of the current conditions of the Boyd Conservation Area (Boyd CA) in the City of Vaughan. In preparation for the upcoming Humber Watershed Plan, a gap analysis of the inventory data collected in the watershed identified that the vegetation community and flora species data at Boyd CA was considered historic (last updated in 2005). It was determined that the fauna data would also need to be updated to make the most informed management decisions.

This report summarizes the conditions using the 2021 survey data while drawing on existing terrestrial fauna and flora data collected since the 1980s. The information is of value both for site management plans and to assess biodiversity at a broader watershed and regional level.

This report summarizes the biological inventory findings to:

- Characterize the terrestrial natural heritage features of the Boyd CA.
- Examine some of the changes to Boyd CA over the past 40 years and assess the impacts of park users and conservation/restoration activities.
- Aid TRCA in management decisions concerning Boyd CA.
- Describe how the natural heritage features of Boyd CA contribute to the regional Natural Heritage System (NHS) and support the watershed and regional biodiversity.

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 TRCA desktop landscape analysis (2017) shows that only 17.8% forest (including successional) and wetland cover remains. It is important to stress that these are cumulative declines that result from innumerable site-specific decisions. 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.

In the late 1990s the TRCA initiated the Terrestrial Natural Heritage Program to address the loss of terrestrial biodiversity and habitat within the jurisdiction's nine watersheds. This work culminated in the Terrestrial Natural

Heritage System Strategy (TNHSS or the Strategy hereafter) (TRCA, 2007a), which was approved by the TRCA Board in 2007.

The aim of the Strategy is to establish, protect, and restore a network of natural cover (forest, wetland, meadow, successional, bluffs and beach) across TRCA's jurisdiction. The primary focus was on improving terrestrial biodiversity and habitat (including vegetation communities, flora, and fauna species) and ecosystem health. The Strategy identified a Terrestrial Natural Heritage System (TNHS) that covered 30% of TRCA's jurisdiction including 25% existing natural cover and 5% potential areas to be restored to natural cover. The core principle of the Strategy was to increase quantity, quality, and distribution of terrestrial biodiversity across the entire jurisdiction, which would also enable a steady provision of other ecosystem services as co-benefits (e.g., flood protection, pest reduction, increased recreation, and aesthetic opportunities) that are vital for human well-being. The Strategy and the TNHS has informed numerous ecosystem management initiatives in policy and practice. This includes policy reviews, land use and infrastructure planning, land acquisition and management, and ecosystem restoration.

In 2021, TRCA completed a technical update to the 2007 TNHS to delineate TRCA's updated regional target NHS (2021). The updated regional target NHS provides an update to the technical component of the Strategy using new data and an integrated approach. It delineates key natural heritage features and areas that are important for TRCA's terrestrial and aquatic ecosystem health across the landscape.

The Strategy and the NHS focuses on biodiversity conservation *before* they become rare, and to promote greater ecological function of the urban ecosystem in a holistic manner. This proactive approach is much needed, especially in a highly urbanized areas like TRCA's watersheds where, by the time a community or species has become rare, irreversible damage has already occurred. Ensuring that the natural systems are healthy and resilient supports regional biodiversity in the long term. Targets, both short and long-term (100 years), provide direction for planning at all scales (TRCA, 2007a; TRCA, 2007b).

The systems approach applied in the Strategy 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

The study area (Boyd Conservation Area) consists of about 149 ha of public land and is located along the East Humber River. The area is bound to the north, west and south by busy major roads (Rutherford Road, Islington Avenue and Langstaff Road respectively), and to the east by the National Golf Club of Canada Golf Course and both low and medium density residential development (Maps 1 and 2). Overall, the site is located in a highly urbanized landscape but with the relatively extensive natural habitat (about 550 ha) of Kortright Centre for Conservation, Boyd Field Centre, and the Glassco Tract to the north (although separated by Rutherford Road and Major MacKenzie Drive) (TRCA, 2013). A continuous system of parks and natural riparian habitat runs several km along the East Humber River from Langstaff Road, north to the more rural landscape beyond Major Mackenzie Drive. The area in the vicinity of Boyd CA was developed between roughly 1980 and 2000, starting from the

south. Prior to that period, it was open agricultural land, aside from the older forested areas that are documented here. The National Golf Club occupies an extensive area of land on the east side of Boyd CA and its forest lands.

The Boyd CA lands, as well as the larger areas to the north, were acquired by TRCA in the early 1960s in the wake of Hurricane Hazel which struck Toronto in 1954 (TRCA, 2013).

The site is situated on the Peel Plain physiographic zone, which formed as the bed of a temporary periglacial lake during the retreat of the Wisconsin ice sheet (the lake existed just after the Oak Ridges Moraine formed but before the ice retreated enough to form Lake Iroquois, whose basin was still filled by ice) (TRCA, 2013). The Peel Plain generally is characterized by flat topography and heavy but fertile clay loam soils, some of which are formed from Halton till and others of which are glaciolacustrine deposits (Hoffman and Richards, 1955). However, Boyd CA is topographically diverse due to the deep valley of the East Humber River and its tributaries. There are sands and gravels along the watercourses; and also small, exposed lenses of these lighter-textured soils along the valley slopes and rims, especially to the south in the Boyd Conservation Area. Soil samples taken in 2021 show a range of soil types from silty clays on the upper tableland to sandy loams on the terraces perched above the flood plain.

The sandy glaciolacustrine deposits are highly permeable, and groundwater emerges where this material contacts the underlying impermeable clayey layer beneath it. This discharge zone feeds Boyd CA's wetland communities.

The study area is situated within the Great Lakes – St. Lawrence Floristic Region, which is composed primarily of mixed coniferous-deciduous forest. A few southern Carolinian species are associated with deciduous forests and openings on warm south-facing slopes and tablelands.

Boyd CA is a provincially and locally important natural area. The northeastern third of the study area is included within the provincially significant Boyd Conservation Area and Adjacent Lands Area of Natural and Scientific Interest (ANSI), together with the southernmost of the Pine Valley woodlots on the north side of Rutherford Road (OMNR, 1998) (Map 2). A large share of the Boyd CA was listed as an Environmentally Significant Area (ESA) before the TRCA initiated its Natural Heritage System approach. Wetlands within Boyd CA are included within the Provincially Significant East Humber River Wetland Complex. In 2005-2006, a proposal to extend Pine Valley Drive through the largest patch of forest in the eastern part of Boyd CA was abandoned on the basis of these natural heritage features, as well as on data collected by Kamstra (2002) and by TRCA in 2005 (TRCA, 2013).

The earliest inventory data was collected in 1981 by MTRCA (1982a). This data was collected for the first Environmentally Significant Areas study undertaken by TRCA (MTRCA, 1982b). Subsequent data has been collected by the provincial Ministry of Natural Resources (now Ministry of Northern Development, Mines, Natural Resources, and Forestry) and consultants as well as by TRCA from the 1980s through the present day.



## 3.0 INVENTORY METHODOLOGY

Terrestrial biological data for the Boyd CA is available from inventory work conducted by the TRCA over the past four decades (see Section 3.2). The most comprehensive datasets are from full flora and fauna inventories conducted in 2005 and 2021. There was also a full fauna inventory in 2016 (as part of the Remedial Action Plan). In 2008, two forest bird monitoring stations were installed in the northeast section of the site as part of the Long-Term Monitoring Program; observations from these annual monitoring visits have been included in assessing the overall status of the breeding bird population at Boyd CA. Where available, terrestrial inventory data has been supplemented by recent incidental records taken from the online citizen science platform, iNaturalist (all such non-TRCA records having been confirmed with photographic evidence).

Biological inventories were conducted at the levels of vegetation community, and species (flora and fauna) according to the TRCA methodologies for field data collection (TRCA, 2007c). The scoring and ranking of vegetation communities, flora, and fauna to generate local conservation concern L-ranks (L1 to L5) is a key underlying process that supports this field work (TRCA, 2017a).

### 3.1 Vegetation Community, Flora and Fauna Species Scoring and Ranking

Vegetation communities, native vascular plants (flora) and native vertebrate animals (fauna) are scored on a set of ecological sensitivity, habitat requirement and abundance criteria by TRCA biologists in order to assign conservation concern status ranks or L-ranks (local ranks of conservation concern). The process of scoring and ranking is described in detail in TRCA (2017a). Applied since 2001, the method also provides for updates of scores and ranks as additional, or more current, data becomes available for a given community or species.

Vegetation community scores and ranks are based on two criteria: local occurrence and the number of geophysical requirements or factors on which they depend (Table 1). Flora species are scored using four criteria: local occurrence, population trend, habitat dependence, and sensitivity to impacts associated with development (Table 2). Fauna species are scored on seven criteria: local occurrence, local population trend, continent-wide population trend, habitat dependence, sensitivity to development, area-sensitivity, and patch isolation sensitivity (Table 3). Species ranked from L1 through L3 are region-wide Species of Conservation Concern. Those ranked L4 are also of concern in the urban and urbanizing parts of the region. Species with an L-rank of L5 are currently not considered of concern as they are able to persist alongside urbanization. Some derive benefit from living in close proximity to human society; as a result, they are likely to be more common in urban than in rural areas.

**Table 1:** L-rank and total score ranges for vegetation communities

L-rank	Total Score Range	Conservation Concern Status
L1	8.5 - 10	Of high level of concern in TRCA jurisdiction due to rarity, stringent site needs, and/or threat to habitat
L2	6.5 - 8	Of regional concern, typically occurs in less-disturbed natural areas and under highly specific site conditions; at risk of decline/disappearance from the region
L3	5 - 6	Of regional concern, restricted in occurrence and/or requires specific site conditions; generally, occurs in natural rather than cultural areas
L4	3 – 4.5	Generally secure in rural matrix; of conservation concern in the urban matrix
L5	1 – 2.5	Generally secure; not of conservation concern unless it contains sensitive species or other features such as old growth; contributes to natural cover
L+	n/a	Community defined by alien species (e.g., Scots pine plantation, buckthorn thicket). Contributes to natural cover

**Table 2:** L-ranks and total score ranges for flora

L-rank	Total Score Range	Conservation Concern Status
L1	19 - 20	Unable to withstand disturbance; many criteria are limiting factors: generally occur in high-quality natural areas in natural matrix; almost certainly rare in the TRCA jurisdiction; of concern regionally
L2	17 - 18	Unable to withstand disturbance; some criteria are very limiting factors: generally occur in high-quality natural areas, in natural matrix; probably rare in the TRCA jurisdiction; of concern regionally
L3	14 - 16	Able to withstand minor disturbance; generally secure in natural matrix; of concern regionally
L4	11 - 13	Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix
L5	2 - 10	Able to withstand high levels of disturbance; generally secure throughout the jurisdiction, including the urban matrix; may be of very localized concern in highly degraded areas
LX	n/a	Extirpated from our region with remote chance of rediscovery (i.e., natural populations). May be present in plantings. Presumably highly sensitive.
LH	n/a	Hybrid between two native species; not scored; a hybrid that is highly stable and behaves like a species (e.g., <i>Equisetum x nelsonii</i> ) is not given this designation, but is scored and ranked
L+	n/a	Exotic; not native to the TRCA jurisdiction; includes hybrids between a native species and an exotic
L+?	n/a	Origin uncertain or disputed, i.e., may or may not be native

**Table 3:** L-ranks and total score ranges for fauna.

L-rank	Total Score Range	Conservation Concern Status
L1	25+	Of high level of concern in TRCA jurisdiction due to rarity, stringent habitat needs, and/or threat to habitat; greatly at risk of decline/disappearance from the region
L2	20 - 24	Of regional concern, typically occurs in less-disturbed natural areas and specific habitat(s); at risk of decline/disappearance from the region
L3	15 - 19	Of regional concern, restricted in occurrence and/or requires specific habitat(s); generally occurs in natural rather than cultural areas
L4	10 - 14	Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix
L5	2 - 9	Able to withstand disturbance; currently considered secure, including in the urban matrix
LX	n/a	Extirpated from the region
L+	n/a	Exotic; not native to the TRCA jurisdiction; exotic species are not scored

### 3.2 Vegetation Community, Flora and Fauna Species Data Collection

Vegetation community, flora species and fauna species data were collected through field surveys. Surveys were carried out at the appropriate times of year to assess breeding status in the case of amphibians and birds, and during the optimal growing period of the various plant species and communities (TRCA, 2007c). Vegetation communities and flora species were surveyed concurrently. It should be noted that all flora and fauna records are subject to a threshold period (15 years for flora, 10 years for fauna) beyond which records are no longer considered current. Thus, only the 2021 data for flora can be considered current, as there was a 16-year gap between the 2005 and 2021 flora surveys.

Botanical fieldwork undertaken in 2021 (and 2005 which followed a substantially consistent protocol within the TRCA) was conducted between the months of May through September (Table 4). Botanical work begins with identifying ephemeral flora in the spring before the full closure of forest canopy occurs. This is followed by the bulk of the vegetation community work in the summer and early fall months when characteristics of community and non-ephemeral flora species are most readily observed. 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 on printouts of digital ortho-rectified photographs (ortho-photos) at a scale of 1:2000 and then digitized in ArcView. Flora taxonomy follows Oldham (2021) and Brouillet et al. (2010+).

Flora Species of Regional Concern (ranked L1-L3) and Urban Concern (L4) were mapped as point data, and the approximate population size recorded for each point. A list of all flora species observed was documented for the site. Plant species records available from historical records were also included in the species list (Table 5) (MTRCA, 1982a; OMNR, 1998; Kamstra, 2002; TRCA, 2013). Finally, data from TRCA's Long Term Monitoring Project's forest vegetation plot located in Boyd CA (2008-2021) and the iNaturalist citizen science platform (indicated in Appendix 2) were also consulted.

The 2021 fauna inventory was conducted across six dates in June and July (Table 5). The night visits surveyed for breeding frog species of Regional and Urban Concern and for other nocturnal fauna species, including owls and American Woodcock (*Scolopax minor*). Diurnal surveys in June point-mapped breeding bird territories (L1-L4 ranked species). Other breeding birds (L5 and exotic) were listed, but not mapped.

Breeding bird surveys were conducted at least twice during the breeding season to assess the breeding status of each mapped individual. Categorization of possible, probable, or confirmed breeding status for birds followed the method used for Ontario Breeding Bird Atlas data collection (Cadman et al., 2007). All initial visits were completed by the end of the third week of June. Bird observations recorded prior to June 16 were validated through a second visit later in the season. A quality assurance process filtered out individuals likely to be migrants in transit, rather than on-site breeders.

Incidental records from 2012 to 2021 (e.g., from the Long Term Monitoring Project's forest bird stations) have been included, and data from TRCA's biological inventory in 2005 have been referenced. Ten years is the threshold for inclusion of fauna data as current under the protocol (TRCA, 2007c), but any significant records for dates prior to 2012 (e.g., various salamander searches) are also referenced in this report. Any records included from the iNaturalist citizen science platform (indicated in Appendix 3) have been confirmed through photographic evidence and checked for veracity.

To assess the status of bat species on the property, a single Anabat Swift batmeter was installed at a location on the west bank of the river, 300 m south of the main bridge at the south end of the property. This device monitored for bats from sunset to sunrise every night from 12<sup>th</sup> May to 14<sup>th</sup> June. Currently, the region's bat species have not been assigned an L-rank but any species discovered are considered L4 until data deficiencies allow for proper rank assignment. It should also be noted that, in the case of this group of species, analysis of results needs to attain at least a "Probable" breeding status to be included in this current inventory.

**Table 4:** Source of terrestrial natural heritage information for Boyd CA.

Survey Item	Source	Dates	Survey Effort
Vegetation Communities and Flora Species	TRCA terrestrial inventory (current report).	2021: May 10-11, 25, 27; June 7-8, 21; July 5-6, 13; Aug 9,26; Sep 15, 21.	90 hours
	TRCA terrestrial inventory (historic, see TRCA (2013)).	2005: May 3-4, 6, 9-10; June 1, 6, 27; Jul 5-6, 13; Aug 8, 20, 22, 26 30.	98 hours
	Kamstra (2002) Pine Valley Environmental Impact Study	2002	-
	OMNR (1998) Area of Natural and Scientific Interest report	1983, 1993, 1998	-
	MTRCA (1982a) Biophysical Inventory	1981	-
	TRCA LTMP forest plot	2008-2021	-
	Incidental Records (iNaturalist)	2021	-
Nocturnal Fauna Species	TRCA terrestrial inventory (current)	2021: June 4, 21; July 23	7.5 hours
	TRCA terrestrial inventory	2016: April 15,	-
	TRCA terrestrial inventory	2005: April 19	-
Bats	TRCA bat monitoring	2021: May 12 to June 14	N/A
Diurnal Fauna Species	TRCA terrestrial inventory	2021: June 1, 16, 30	16 hours
	TRCA terrestrial inventory	2016: June 6, 7, 8, 21, 27	unknown
	TRCA terrestrial inventory	2005: June 14, 16, 30; July 6	unknown
Ambystoma salamanders	TRCA targeted search	2005: April 5, 24	-
Plethodontid salamanders	TRCA Long Term Monitoring Project (salamander cover boards)	2005 - 2018	-
Forest Bird Species	TRCA Long Term Monitoring Project (2 forest bird stations)	2008 – 2021: two visits annually from late May to early July	-
Fauna Species	Incidental records (iNaturalist)	2019 to 2021	-

## 4.0 RESULTS AND DISCUSSION

Throughout this report, species are referred to by common name, with scientific name in brackets the first time a species is mentioned. Appendices 2 and 3 list the species found by scientific and common names.

The 2017 ortho-photography shows that 24.7% of the land area in the TRCA jurisdiction hosts natural cover, including 6.1% meadow. Historically, the region would have consisted of up to 95% forest cover with interspersed wetlands and very little meadow coverage; currently just 17.5% forest, successional habitat and wetland remains. Forest and wetland cover are contained largely in the northern half of the TRCA jurisdiction,

especially on the Oak Ridges Moraine. The existing natural system stands below the 30% quantity target set for the region (TRCA, 2007a). Fauna species of conservation concern are also largely restricted to the northern part of the jurisdiction and generally absent from the urban matrix (Map 3).

Boyd Conservation Area has a large amount of natural cover (Figure 1).



**Figure 1:** Boyd Conservation Area has a large expanse of natural cover including forest, wetland, and meadow/successional (photo: TRCA, 2021).

Ground-truthed field work reveals 117 ha of natural cover, about 79% of the total area of 149 ha. The remaining 32 ha consists of manicured picnic areas, internal roads, parking lots, and maintenance facilities (Map 2).

#### **4.1 Vegetation Community Findings for Boyd Conservation Area**

Examination of habitat at the finer level of detail provided by vegetation communities gives greater insight into current habitat patch value. High scoring habitat patches that are made up of native vegetation communities

and vegetation communities of concern have the highest potential to support regional biodiversity and species of conservation concern.

#### 4.1.1 Vegetation Community Representation

The surveys in 2021 included 117.4 ha of natural cover at Boyd Conservation Area. There were 87 different vegetation communities spanning 6-7 broad vegetation classes (i.e., forest, plantation, successional, meadow, wetland/aquatic, and dynamic (Table 5; Appendix 1).

Table 5: Summary of vegetation communities at Boyd CA, 2021.

Class	Number of Types	Total Area (hectares)	% of Natural Cover
Forest	30	62.0	53
Plantation	16	17.1	15
Successional	11	27.0	23
Meadow	2	2.6	2
Wetland	15	3.9	3
Aquatic	3	2.7	2
Dynamic	10	2.2	2
<i>Total</i>	<i>87</i>	<i>117.4*</i>	<i>100</i>

\*N.B. Due to rounding errors, the total area may not exactly equal the sum of the column.

##### 4.1.1.1 Forests

Forests occupy the majority of the natural cover: 62.0 ha (53%) of the vegetation communities. There are 30.9 ha of deciduous forest and 31.1 ha of coniferous or mixed forest. The high proportion of conifers is unusual in TRCA's jurisdiction, with coniferous and mixed forests concentrated on slope and terrace topography in the east part of the site corresponding with the ESA and ANSI. A portion of the forest on the terraces is old growth, identified by the presence of very large shade-tolerant trees such as hemlock (*Tsuga canadensis*), and a range of smaller younger trees in old gaps. These forests retain the original soil profile and often the original ground flora. They were never converted to agricultural or other intensive human land uses, even if there had been disturbances such as storm blowdowns, fire, or limited logging many decades ago. No age data for individual trees is available for the old-growth section, but there were trees sampled adjacent to TRCA's Long-Term Monitoring forest vegetation plot (plot number FV-6). The plot is in a younger but still mature part of the forest patch, in deciduous forest dominated by sugar maple (*Acer saccharum*). Five trees were sampled in 2008-2010, with ages ranging from 54 to 124 years (hence up to 135 years in 2021).

Although concentrated in the terrace area in the east-central part of Boyd CA, coniferous and mixed forests are also found on north and east-facing slopes on both sides of the East Humber River valley. They are largely mature (and old growth) stands of Fresh-Moist Sugar Maple – Hemlock Mixed Forest (FOM6-1) (this type alone covering 19.3 ha), Fresh-Moist Hemlock Coniferous Forest (FOC3-1), and Dry-Fresh White Pine – Sugar Maple Mixed Forest (FOM2-2). Characteristic canopy trees include hemlock, sugar maple, white pine (*Pinus strobus*),

with smaller amounts of beech (*Fagus grandifolia*), red oak (*Quercus rubra*), yellow birch (*Betula alleghaniensis*), and black cherry (*Prunus serotina*). The understorey and shrub layers include sugar maple, hemlock, ironwood (*Ostrya virginiana*), white ash (*Fraxinus americana*), and choke cherry (*Prunus virginiana*). The ground flora varies from minimal to moderately dense, and includes a blend of ferns, sedges (*Carex* spp), and Canada May-flower (*Maianthemum canadense*). There are patches of yellow trout-lily (*Erythronium americanum*), running strawberry-bush (*Euonymus obovatus*), and the invasive garlic mustard (*Alliaria petiolata*).

Smaller areas of white cedar (*Thuja occidentalis*) dominated forest occur in lowland areas: Fresh-Moist White Cedar Coniferous Forest (FOC4-1) and Fresh-Moist White Cedar – Hardwood Mixed Forest (FOM7-2). Associated trees include basswood (*Tilia americana*), and poplar (*Populus* spp), while ferns are abundant in the herb layer.

A few coniferous and mixed forest communities are young to mid-aged: Fresh-Moist White Poplar Mixed Forest (FOM8-1), Fresh-Moist Paper Birch Mixed Forest (FOM8-2), Fresh-Moist Hardwood Mixed Forest (FOM8-B) and Dry-Fresh White Pine Coniferous Forest (FOC1-2). These feature white pine, basswood, paper birch (*Betula papyrifera*), balsam poplar (*Populus balsamifera*), and trembling aspen (*Populus tremuloides*). Vines such as riverbank grape (*Vitis riparia*) and thicket creeper (*Parthenocissus vitacea*) are abundant, as is buckthorn (*Rhamnus cathartica*). The ground layer includes glaucous goldenrod (*Solidago gigantea*), scouring rush (*Equisetum hyemale*), and false Solomon's seal (*Maianthemum racemosum*).

Deciduous forest, occupying 30.9 ha in 2021, is largely dominated by sugar maple. This can be found throughout Boyd CA, with the largest patch being in the northeast, occupying both slope and tableland. Sugar maple communities cover 26.3 ha and include 8 vegetation types. The major ones are Dry-Fresh Sugar Maple – Oak Deciduous Forest (FOD5-3), Dry-Fresh Sugar Maple – Beech Deciduous Forest (FOD5-2), Dry-Fresh Sugar Maple – Ironwood Deciduous Forest (FOD5-4), and Fresh-Moist Sugar Maple – Hardwood Deciduous Forest (FOD6-5). Associates with sugar maple include black maple (*Acer nigrum*), beech, red and bur oak (*Quercus rubra* and *Q. macrocarpa*), basswood, ironwood, bitternut hickory (*Carya cordiformis*), and black cherry. White ash (*Fraxinus americana*) was abundant in 2005, but mature trees are now largely dead due to emerald ash borer (*Agrilus planipennis*).

Sapling and shrub regeneration in the sugar maple forest is sparse, with sugar maple saplings, ironwood, white ash, choke cherry, alternate-leaved dogwood (*Cornus alternifolia*), and buckthorn making up the vast majority of stems. The ground layer, however, is much richer. Many stands have a dense cover of spring ephemerals, including yellow trout-lily, wild leek (*Allium tricoccum*), and toothwort (*Cardamine* spp). Other wildflowers include trilliums (*Trillium grandiflorum* and *T. erectum*), Jack-in-the-pulpit (*Arisaema triphyllum*), enchanter's nightshade (*Circaea canadensis*), and Virginia waterleaf (*Hydrophyllum virginianum*). *Carex* sedges are abundant and diverse, and there is also a range of woodland grasses. Garlic mustard forms extensive patches along trails and in canopy gaps.

Smaller areas of deciduous forest are non-sugar maple vegetation types. These include Dry-Fresh Red Oak Deciduous Forest (FOD1-1) near the southeast corner of Boyd CA; and some disturbed areas on the slopes: Dry-Fresh Poplar Deciduous Forest (FOD3-1), Dry-Fresh Manitoba Maple Deciduous Forest (FOD4-b), and Dry-Fresh Norway Maple Deciduous Forest (FOD4-d). The Norway maple (*Acer platanoides*) forest occupies 0.6 ha on the



west side of Boyd CA near Islington Avenue. These forests have a weedier understory and ground layer with buckthorn, garlic mustard, and enchanter's nightshade. However, white trillium is abundant in the oak forest.

About 2.3 ha of forest is floodplain deciduous forest, comprising Fresh-Moist Willow Lowland Deciduous Forest (FOD7-3), Fresh-Moist Black Maple Lowland Deciduous Forest (FOD7-5), Fresh-Moist Manitoba Maple Lowland Deciduous Forest (FOD7-a), and Fresh-Moist Basswood Lowland Deciduous Forest (FOD7-F). The main trees are crack willow (*Salix x fragilis*), Manitoba maple (*Acer negundo*), black walnut (*Juglans nigra*), and basswood. Riverbank grape, thicket creeper, buckthorn, and Morrow's honeysuckle (*Lonicera morrowii*) are abundant in the understory. The ground layer is rather weedy with abundant garlic mustard. However, stands with black maple and basswood trend more native, with yellow trout-lily, common blue violet (*Viola sororia*) and smooth yellow violet (*Viola pubescens* var. *scabriuscula*).

#### 4.1.1.2 Plantation Communities

Boyd Conservation Area has extensive older plantations concentrated in the western half of the site, as well as smaller areas of more recent restoration plantings. Many of the older plantations are in poor condition with high tree mortality.

There are 16 plantation vegetation types covering 17.1 ha. These are roughly evenly divided between coniferous, mixed, and deciduous plantation (with slightly lower amounts of coniferous). Seven types occupy more than 1 ha: Norway Maple – Conifer Mixed Plantation (CUP2-c), Black Walnut Deciduous Plantation (CUP1-3), White Pine Coniferous Plantation (CUP3-2), White Spruce Coniferous Plantation (CUP3-C), Black Locust Deciduous Plantation (CUP1-c), Horticultural Deciduous Plantation (CUP1-d), and Red Oak – Conifer Mixed Plantation (CUP2-l). Major tree species include Norway maple, black walnut, black locust, red oak, white pine, white spruce (*Picea glauca*), Norway spruce (*P. abies*) and Rocky Mountain Douglas-fir (*Pseudotsuga menziesii* var. *glauca*). The Douglas-fir, a western species, attained a large size but is now declining. Newer restoration plantations: Restoration Deciduous Plantation (CUP1-A) and Restoration Mixed Plantation (CUP2-A) cover just 0.4 ha.

The plantations do not have the native sapling and ground flora regeneration that would move them in the direction of a more natural forest. Understorey species include buckthorn, choke cherry, Amur maple (*Acer ginnala*), and ash saplings (which are likely to succumb to emerald ash borer upon reaching maturity). Herbaceous species include garlic mustard, European cool-season grasses such as orchard grass (*Dactylis glomerata*), dog-strangling vine (*Vincetoxicum rossicum*), and herb Robert (*Geranium robertianum*).

#### 4.1.1.3 Successional Communities

These are communities with varying but low amounts of woody cover (usually 25-60%) and still have abundant sunlight reaching the ground. They most often result from natural succession as woody plants invade old agricultural or cleared land but may also arise when a closed-canopy forest is opened up due to tree cutting, tree mortality (pests and diseases), or storm damage.

Most of the successional communities at Boyd CA occur on the floodplain near the East Humber River. They comprise 11 vegetation types occupying 27.0 ha. By far the largest share is held by three vegetation types:

Native Deciduous Successional Woodland (CUW1-A3), Exotic Successional Savannah (CUS1-b), and Native Deciduous Successional Savannah (CUS1-A1).

The structure and species composition are intermediate between floodplain forests and meadow. Black walnut figures prominently. Other trees include Manitoba, black, sugar, and Norway maple, basswood, elm (*Ulmus* spp), and bur oak. Riverbank grape and thicket creeper are abundant, as are buckthorn, Morrow's honeysuckle, and black raspberry. Staghorn sumach (*Rhus typhina*), hawthorns (*Crataegus* spp), and autumn-olive (*Elaeagnus umbellata*) are sometimes prevalent.

Herbaceous cover is dense and include many open meadow species. Some of these are goldenrods (*Solidago* spp), European cool-season grasses, wild bergamot (*Monarda fistulosa*), and asters (*Symphyotrichum* spp). Garlic mustard is prevalent in shadier sections, and dog-strangling vine appears sporadically.

#### **4.1.1.4 Meadow Communities**

Meadows are open landscapes with minimal woody cover that are the result of renaturalization of former agricultural or manicured land. Boyd CA has 2.6 ha of fully open meadow: 0.7 ha of Native Forb Meadow (CUM1-A) and 1.9 ha of Exotic Cool-season Grass Graminoid Meadow (CUM1-b). Native forbs are largely goldenrods, especially tall goldenrod (*Solidago altissima*) and asters, especially New England, panicled, and heath aster (*Symphyotrichum novae-angliae*, *S. lanceolatum*, and *S. ericoides*). European cool-season grasses include smooth brome (*Bromus inermis*), timothy (*Phleum pratense*), meadow fescue (*Lolium pratense*), Kentucky blue grass (*Poa pratensis*), meadow foxtail (*Alopecurus pratensis*), and orchard grass. Dog-strangling vine is invading some meadow areas.

#### **4.1.1.5 Wetland and Aquatic Communities**

Wetlands are a small but extremely important feature of Boyd CA. They cover 3.9 ha with 15 vegetation types represented (Appendix 1). Vegetated aquatic communities contribute another 0.1 ha with 2 vegetation types. The wetlands at Boyd CA are included within the provincially significant East Humber River and most of them are within the Boyd ANSI. The wetlands include old riparian oxbow channels and groundwater discharge zones (seepage). They are scattered throughout Boyd CA but are more abundant on the east side. The oxbow channels in the core forest area on the northeast section of the site have extensive vernal pools that are of great value for amphibians and other wildlife (Figure 2; also see Section 4.3).



**Figure 2:** A network of vernal pools runs along old oxbow channels in the core forest of Boyd Conservation Area (photo: TRCA, 2021).

Swamp communities cover 1.7 ha. The main types include White Cedar – Conifer Mineral Coniferous Swamp (SWC1-2), Red Ash – Hemlock Mineral Mixed Swamp (SWMA-A), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1). There are a couple of small patches of Willow Mineral Thicket Swamp (SWT2-2) on the west side of the river. Main tree species in the swamps include (depending on the type) white cedar, crack willow, Manitoba maple, hemlock, and ash.

Shrub and understorey species in the swamps include black ash (*Fraxinus nigra*), mountain maple (*Acer spicatum*) and speckled alder (*Alnus incana* ssp. *rugosa*). Herbaceous species vary according to the amount of light and water, but ferns such as sensitive fern (*Onoclea sensibilis*), ostrich fern (*Matteucia struthiopteris*), and bulblet fern (*Cystopteris bulbifera*) are abundant in shadier areas, with paniced aster, horsetails (*Equisetum* spp), orange touch-me-not (*Impatiens capensis*), and groundnut (*Apios americanus*) where it is more open.

There are eight marsh types covering 2.2 ha. The largest share is Narrow-leaved Cattail Mineral Shallow Marsh (MAS2-1b) with 0.9 ha. This occurs around a couple of small ponds on the west side of the park that have some

stormwater input, as well as in a disturbed seepage area on the east side that has been affected by runoff and construction along Pine Valley Drive. Fortunately, the invasive Common Reed Mineral Meadow Marsh (MAM2-a) is restricted to a couple of tiny patches adjacent to Rutherford Road along the north boundary of the site.

Marshes in the oxbows occur where there is less tree cover, though there may be overhang from the adjacent forests. These include Rice Cut-grass Mineral Shallow Marsh (MAS2-8), Forb Mineral Shallow Marsh (MAS2-9), and Jewelweed Mineral Meadow Marsh (MAM2-9). These areas are associated with vernal pools that dry down in the summer. Major species include rice cut-grass (*Leersia oryzoides*), marsh marigold (*Caltha palustris*), panicked aster, and orange touch-me-not.

One oxbow pond in the southwest part of Boyd CA has Bur-reed Mineral Shallow Marsh (MAS2-7) and Horsetail Mineral Meadow Marsh (MAM2-7). Associated species are green-fruited bur-reed (*Sparganium emersum*), scouring-rush (*Equisetum hyemale*) and common horsetail (*Equisetum arvense*).

Duckweed Floating-leaved Shallow Aquatic (SAF1-3) occurs in the deeper areas of oxbows that rarely dry up and is more prominent earlier in the season when water levels are higher (see Figure 2). This is covered with a layer of turion duckweed (*Lemna turionifera*). Water-lily Mixed Shallow Aquatic (SAM1-A) results from plantings and is currently only in a habitat pond on the west side of the site. This has tuberous white water-lily (*Nymphaea odorata* ssp. *tuberosa*).

#### 4.1.1.6 Dynamic Communities

Dynamic communities are (unlike successional communities) kept in an open or semi-open state by natural processes such as erosion, fire, or drought. They may feature specialized native plants.

Dynamic communities at Boyd CA include four riparian bar communities and three bluff communities associated with the East Humber River, two small complexes of sand barren, and one prairie planting.

The bluff communities that are treed or shrub have a sparse woody cover of sugar and Manitoba maple, and autumn-olive. All the bluffs have a sparse herbaceous cover consisting of colt's foot (*Tussilago farfara*), common horsetail, and scattered goldenrods, asters, and European cool-season grasses.

Riparian bar communities on sand and gravel deposits, have scattered black walnut, white and sandbar willow (*Salix alba* and *S. interior*), and Manitoba maple. Herbaceous species include panicked aster, groundnut, glaucous and tall goldenrods, and ostrich fern. Graminoids are prominent and include reed canary grass (*Phalaris arundinacea*), eared brome (*Bromus latiglumis*), riverbank rye (*Elymus riparius*) and rushes (*Juncus* spp).

Sand barrens are less prominent than in 2005, now present only as complexes in a couple of slightly elevated areas of old riparian deposits, one on each side of the East Humber River. They include Flat-stemmed Blue Grass – Forb Sand Barren (SBO1-B) and Forb Sand Barren (SBO1-D). Characteristic species include cinquefoils (*Potentilla* spp), flat-stemmed blue grass (*Poa compressa*), scouring-rush, and English plantain (*Plantago lanceolata*).

There is one Fresh-Moist Tallgrass Prairie Planting (TPO2-A) community adjacent to the main trail.

### 4.1.2 Vegetation Communities of Concern

Boyd Conservation Area has 23 communities of regional conservation concern (rank L2-L3) covering 9.6 ha. In addition, there are 23 communities of urban conservation concern (L4) covering 45.0 ha (Appendix 1; Map 4). A large share of the Fresh-Moist Sugar Maple – Hemlock Mixed Forest (FOM6-1) is old growth, which qualifies it for a higher level of conservation concern than its regular rank (L4) would imply. The same is true for the Fresh-Moist Hemlock Coniferous Forest (FOC3-1). Vegetation communities of conservation concern can be found among forest, wetland, and dynamic classes. The highest conservation concern communities, based on their either having a rank of L2 or old-growth status, are presented in Table 6.

**Table 6:** Selected Vegetation Communities of Conservation Concern at Boyd Conservation Area, 2021.

Vegetation Type	ELC Code	Total Area (hectares)	L-Rank
Fresh-Moist Hemlock Coniferous Forest	FOC3-1	1.5	L3 (borderline old growth)
Dry-Fresh White Pine – Oak Mixed Forest	FOM2-1	0.5	L2
Fresh-Moist Sugar Maple – Hemlock Mixed Forest	FOM6-1	19.3	L4 (old growth)
Dry-Fresh Red Oak Deciduous Forest	FOD1-1	1.0	L2
Ash – Hemlock Mineral Mixed Swamp	SWMA-A	0.3	L2
Bur Oak Mineral Deciduous Swamp	SWD1-2	0.03	L2
Flat-stemmed Bluegrass – Forb Sand Barren	SBO1-B	complex	L2
Forb Sand Barren	SBO1-D	complex	L2

The Dry-Fresh White Pine – Oak Mixed Forest is located on a terrace just above floodplain level in the southwest part of the site. This vegetation type typically occurs on upper slopes and tablelands on dry sandy soil (Lee *et al.* 1998). White pine and oak typically require infrequent disturbances such as fire to create sufficient canopy gaps for stand establishment.

The Dry-Fresh Red Oak Deciduous Forest (FOD1-1) occurs in two patches in the far southwest and southeast part of the site. It is possible that these patches originate at least in part from plantings, but the ground vegetation includes a high density of native species such as white trillium which suggests a natural forest stand.

The Ash – Hemlock Mineral Mixed Swamp (SWMA-A) is associated with seepage in a steep side ravine on the east side of the site that forms a small watercourse that enters the complex of oxbow wetlands. The other L2 swamp, Bur Oak Mineral Deciduous Swamp (SWD1-2) results from increased water tables in what would have been a lowland forest. The water comes from drainage leading from Pine Valley Drive. In this community, many of the older trees are dying from saturation but some bur oaks are surviving.

The two sand barrens ranked L2 are not mapped as individual polygons but as complexes within riparian successional communities, forming on drier sandy ridges.

### 4.1.3 Vegetation Community Disturbances and Changes

Vegetation communities within Boyd Conservation Area are under pressure from several different anthropogenic disturbances which include but are not limited to trampling, invasive species, nutrient loading, and erosion caused by storm water input. Disturbances caused from pest and pathogen outbreaks are also a factor.

Trampling is locally intense, most notably in the core of the old growth forest which is a very attractive environment (Figure 3). The trampling is less severe than at some other parks in the TRCA jurisdiction, such as Sherwood Park (TRCA, 2022). This is partly because Boyd CA is part of a much larger natural system that extends north towards Kortright, and users have more space. Nonetheless, this forest has delicate ground vegetation. The ground in the forest communities has wide trails and noticeable bare patches, even in the spring.



**Figure 3:** Trampling has led to wide trails and loss of ground vegetation in Boyd CA’s forest (photo: TRCA, 2007).

Boyd CA is used for film shoots, and large crews were seen on several occasions during field season. It is difficult to assess how much they use the natural areas for filming or what impacts this activity has.

Invasive plant species are described in more detail below (see Section 4.2.4). However, invasive pests and diseases have also affected Boyd CA. LDD Moth (*Lymantria dispar dispar*) can attack a wide array of tree species and had a major impact in 2021. Sections of the site were almost completely defoliated (Figure 4). The forest long-term monitoring plot had moderate to severe defoliation on every tree.



**Figure 4:** A big proportion of the forest at Boyd CA was heavily defoliated by LDD moth in 2021 (photo: TRCA, 2021).

Beech bark disease (a complex of introduced European scale insects and opportunistic fungi that invade the wounds caused by them) and butternut canker (*Ophiognomonia clavignenti-juglandacearum*) have affected their host species, as have Dutch elm disease (*Ophiostoma novo-ulmi*) and emerald ash borer. With the exception of beech, none of these trees is a major component of the canopy. Butternut (*Juglans cinerea*) and rock elm (*Ulmus thomasii*) were not observed in the 2021 survey and may have been eradicated. There appears to be a lot of tree decline and dieback in parts of the site that cannot be easily ascribed to any particular disease or pest. About 41% (25.5 ha) of the forest was recorded as having moderate to severe crown dieback in 2021. Some of this can be related to temporary LDD moth defoliation, but there were also many dead trees that appeared to have died over an extended period (i.e., they had no fine twigs, were losing bark and falling, etc.) Storm damage, including the December 2013 ice storm and even the August 2009 Woodbridge tornado, may have contributed. The dieback has even affected the invasive Norway maple (Figure 5).



**Figure 5:** Tree decline has affected even Norway maple in parts of Boyd Conservation Area (photo: TRCA, 2021).



Wetland and aquatic communities are altered by local run-off from urban (or agricultural) areas. Impermeable surfaces add extra water. The runoff also contains extra sediment, nutrients, and road salt. Nutrient inputs encourage the growth of algae in aquatic communities and aggressive invasive species in more emergent wetland communities. A boulder-lined swale extending from the north end of the Pine Valley Drive cul-de-sac ends up in a disturbed part of the wetland with hybrid cattail and a stand of saturated woods that is now the Bur Oak Mineral Deciduous Swamp (SWD1-2).

Although MTRCA (1982a) included a rudimentary form of vegetation mapping in the 1981 inventory, the first ELC survey was done in 2005. Changes in vegetation over the 16-year period 2005-2021 have not been drastic, although there appears to have been declines in meadow and closed-canopy forest with a corresponding increase in successional communities (Figure 6).

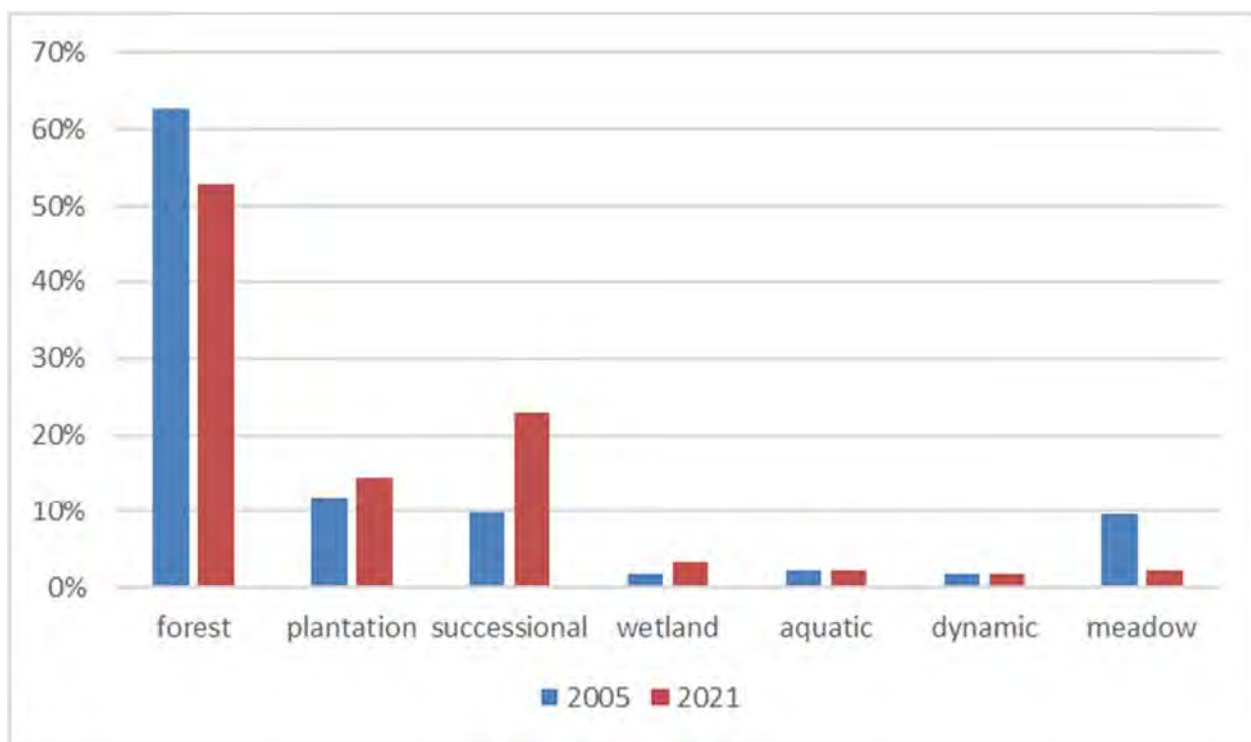


Figure 6: Percentage of natural cover at Boyd CA assigned by various vegetation classes in 2005 and 2021.

The decrease in meadow (from 10% to 2% of the total natural cover) can be attributed to natural succession as woody species slowly move into formerly cleared land. However, one would also expect this to lead eventually to an increase in forest cover as even more trees grow in. Instead, forest cover has declined by about 10% (from 63% to 53%). This matches the pattern observed at the Humber Arboretum (TRCA, 2021). It further lends credence to the idea that pests and disease are creating gaps in forest cover and encouraging “reverse succession”: the replacement of closed canopy forest with semi-open disturbed woodlands. Storm events such as the ice storm of December 2013 may be contributing to canopy opening. At the same time, meadows continue to grow in with opportunistic fast-growing trees and shrubs resulting in a convergence on successional communities composed of prolific but short-lived, often exotic woody plants. Buckthorn and Manitoba maple are prime examples of prolific exotics currently poised to replace the original canopy and redefine future forests.

The native black walnut, which secretes juglone to suppress many other plants, appears to be expanding into disturbed areas. Such successional communities may be becoming the default form of upland natural cover in the jurisdiction. TRCA biological inventories, because of their extensive scope, may be able to detect such a signal even though they collect less information on tree health than long-term monitoring plots.

A few more detailed observations can be summarized as follows:

- LDD moth defoliated large areas of forest in 2021. Most trees will probably recover, but the prognosis for hemlock that get defoliated is poorer.
- Forest communities still have a rich ground layer in 2021, including spring ephemerals. However, garlic mustard was thriving where LDD moth had opened the canopy. This may be a temporary fluctuation if the trees recover.
- Trampling was present in both 2005 and 2021. It may have increased slightly as the urban area of Vaughan expands and more users enter the park, but there isn't a clear way of assessing this.
- Ash was prominent up to 2005 and since then all mature trees have died due to emerald ash borer. Saplings are abundant but may be susceptible to EAB once they attain a greater size.
- Other century-old or older canopy trees such as hemlock, red oak, beech, black cherry, and white pine are occasionally dying and falling. There is also no recruitment of these species, except for a few root suckers of beech and new plantings along the edges of picnic areas. Sugar maple alone of the canopy trees is regenerating. Gaps are otherwise filling in with shrubs such as choke cherry.
- Tree decline is notable especially in the western part of Boyd CA, where older plantations included Douglas-fir, Norway spruce (*Picea abies*), and Norway maple. In 2021, these areas had barely enough tree cover to qualify as plantation and several polygons of different plantation types recorded in 2005 were subsumed into a Norway Maple – Conifer Mixed Plantation (CUP2-c).

The overall picture is of a forest under noticeable but not extreme stress. Some, but not all of the stress, can be attributed to identifiable pests and diseases such as emerald ash borer and LDD moth. Storm events, pollution, climate change, and user pressure might also contribute.

## 4.2 Flora Findings for Boyd Conservation Area

### 4.2.1 Flora Species Representation

If one considers the entire inventory record at Boyd CA from 1981 to the present, a total of 598 flora taxa (including subspecies but excluding duplicates not identified to subspecies) have been observed (Appendix 2) (MTRCA, 1982a; OMNR, 1998; Kamstra, 2002; TRCA, 2013). However, this includes records as old as 40 years.

Current records (within the last 15 years 2007-2021) are restricted to those found in the 2021 inventory, plus a very few records from iNaturalist and the forest long-term monitoring plot. The total is 473 current flora taxa

(Table 7). There were 471 observed in 2021 and 2 observed in 2019. Four hundred forty four of the 473 current records are naturally occurring, and 29 are introduced to the site through planting.

Of those species that are naturally occurring, native plants account for slightly more than two-thirds (302 species) of the total. This is within the range of what one normally finds in high quality sites in the TRCA jurisdiction, because the site has a large share of mature forest and wetland rather than disturbed re-growth. However, the high degree of disturbance exerted on the site from the surrounding urban landscape is driving a relatively high prevalence of exotic species. The pattern is similar to Lake St. George Field Centre (TRCA, 2017b).

**Table 7:** Current flora species, Boyd CA, 2019-2021. Regional species of conservation concern (L1-L3), urban species of conservation concern (L4), secure species (L5), exotic/probable exotic species (L+/L+?).

Species by L-Rank	No. of naturally occurring species	No. of planted species	Total no. of species
L1-L3	52	8	60
L4	95	5	100
L5	155	1	156
L+/L+?	142	15	157
<i>Total no. of species</i>	<i>444</i>	<i>29</i>	<i>473</i>

#### 4.2.2 Flora Species of Concern

There are 52 naturally occurring vascular plant species of regional conservation concern (rank L1-L3) and 95 of urban conservation concern (L4) in Boyd CA (Map 5, Table 7). Six of the L1-L4 plants are regionally rare, meaning that they are found in 6 or fewer of the forty-four 10×10 km UTM grid squares that cover the TRCA jurisdiction.

The six rare species are as follows:

- glade fern (*Homaliosorus pycnocarpus*). A dense patch was found in a forested ravine first by Kamstra (2002) and is still present, with a seemingly stable population. This is a species of moist deciduous forests. It is known from Boyd and Albion Hills Conservation Areas, and one other TRCA location.
- Back’s sedge (*Carex backii*). Occurs in upland dry forests widely scattered in TRCA. One population found at Boyd in 2021, no earlier records at this site (sedges are cryptic and easily missed).
- smooth rock-cress (*Borodinia laevigata*). Known in TRCA only from Boyd CA and Rouge National Urban Park. Four closely adjacent populations at Boyd CA which may have declined slightly since 2005. It had been noted as far back as 1981. It is susceptible to competition by invasive species and deer browse.
- wild blue phlox (*Phlox divaricata*). One population found in a rich deciduous forest in 2021. This spring flower had been observed in 1981 and 1983 but missed in the intervening decades.

- hairy beard-tongue (*Penstemon hirsutus*). Has been observed from 1981 to the present. One population occurs at Boyd CA which seems to be declining (Figure 7). This species is characteristic of oak savannahs but also can be found in other dry openings. It does seem to be declining in the TRCA jurisdiction as such gaps fill in with shrubs and invasive species.
- Great Lakes panicled aster (*Symphotrichum lanceolatum* var. *hirsuticaule*). A hairy variety of the common panicled aster in moist meadows usually fairly close to the lakeshore. This plant is likely more common than supposed and probably underreported.



Figure 7: The regionally rare hairy beard-tongue persists at Boyd Conservation Area (photo: TRCA 2021).

Rarity and population trend are just two of four criteria used to derive L-rank. The other criteria are habitat dependence; and sensitivity to human disturbance associated with development (TRCA, 2017a). Most of the species of regional or urban conservation concern at Boyd CA are habitat specialists that are sensitive to one or more forms of anthropogenic disturbance even if they aren't currently rare. The broad habitat types at Boyd CA are deciduous forest, mixed or coniferous forest, successional communities and meadows, wetlands, and dynamic openings such as riparian bars and sand barrens. Species of concern cluster into these habitats (Map 6).

Characteristic of deciduous forests are spring ephemerals and other ground flora such as yellow trout-lily, narrow-leaved spring beauty (*Claytonia virginica*), white trillium and blue cohosh (*Caulophyllum thalictroides* and *C. giganteum*). Numerous sedges are also characteristic (e.g., *Carex cephaloidea*, *C. hirtifolia*, *C.*

*hitchcockiana*, *C. platyphylla*, and *C. woodii*). There are also woodland grasses: black fruited mountain rice (*Patis racemosa*), grove meadow grass (*Poa alsodes*), and nodding fescue (*Festuca subverticillata*). Running strawberry bush (*Euonymus obovatus*) is abundant. Several of the major deciduous tree species in the ESA are ranked L4 or higher, including red oak, bur oak, and American beech. These are common species but tend to be restricted to relict natural forest areas.

The mixed forest at Boyd CA includes white pine and hemlock as L4 species; associated ground flora includes hairy wood rush (*Luzula acuminata*), Peck's sedge (*Carex peckii*), evergreen wood fern (*Dryopteris intermedia*), and white-fruited mountain rice (*Oryzopsis asperifolia*).

Specialist species of swamps include speckled alder, mountain maple, skunk cabbage (*Symplocarpus foetidus*), and nodding wood reed (*Cinna latifolia*). Willows such as peach-leaved and slender willow (*Salix amygdaloides* and *S. petiolaris*) occur in the more open swamps.

Great Lakes paniced aster and rushes such as knotted rush (*Juncus nodosus*) are specialists found in meadow-marshes, while green-fruited bur-reed, soft-stemmed bulrush (*Schoenoplectus tabernaemontani*) and ditch stonecrop (*Penthorum sedoides*) occur in shallow marshes. Shallow aquatic areas have turion duckweed and star duckweed (*Lemna trisulca*), and common water-weed (*Elodea canadensis*).

Floodplain woodlands and successional areas have their own suite of species at Boyd CA. These include Michigan lily (*Lilium michiganense*), eared brome grass, riverbank wild rye, and Le Conte's violet (*Viola affinis*). Prickly-ash (*Zanthoxylum americanum*) is locally abundant in understory and scrubby areas on the East Humber floodplain.

Open or semi-open drier areas at Boyd CA have wild coffee (*Triosteum aurantiacum*), black-eyed Susan (*Rudbeckia hirta*), and hairy beard-tongue. Dry ridges in woods that are slightly open have northern bedstraw (*Galium boreale*) and smooth rock-cress.

Sensitivity to development refers to the response of flora species to specific land use impacts (Section 3.1; see also TRCA, 2017a). Examples of such impacts include trampling, with its associated plant tissue damage and soil compaction; competition from invasive exotic species that readily move into disturbed or fragmented habitats from gardens or trails; picking and collection; changes in hydrology and surficial conditions; herbivory and pollution (i.e., soil, water and/or air). Invasive species (exotic plants, pests, and diseases) are present in all habitats and are discussed further in Section 4.2.4. Trampling occurs in forested parts of Boyd CA. Hydrological and pollution issues affect wetland species. Most flora species of concern are affected by at least one of these impacts (Map 7).

Trampling is heavy in parts of Boyd CA, notable the old growth forest, as discussed in Section 4.1.3. The most affected species would be forest ground flora with slower growth and delicate stems, such as rose twisted-stalk (*Streptopus lanceolatus*), wood anemone (*Anemone quinquefolia*), running strawberry-bush and white trillium. A few forest floor species were only seen in earlier inventories (2005 or earlier) (see Section 4.2.3).

Deer browse can also affect forest ground flora and appeared to be of moderate intensity during the 2021 survey. Specifically, browsing was observed on trillium and the rare smooth rock-cress to the extent that flowering and fruiting are likely reduced. This is a particular problem for the rock-cress, which is biennial and depends on frequent, reliable seed production for populations to persist. Deer might also be contributing to the failure of hemlock to reproduce in the understory.

A few species such as wild leek are sometimes collected as wild edibles, while Michigan lily's showy flowers could invite collection for flower arrangements or gardens (Figure 8). Even the abundant ostrich fern (*Matteucia struthiopteris*) might be vulnerable to collection for fiddlehead consumption in the spring.



**Figure 8:** Michigan lily, one of the most spectacular flowers at Boyd CA may be prone to picking (photo: TRCA 2021).

Many native plants rely on natural disturbance regimes to thrive. While not as fire dependent as the oak savannah species of High Park, many trees and wildflowers of dry upland forests require occasional moderate disturbances (fire, windthrow) that create small to medium size canopy gaps for regeneration. Even-aged stands with few gaps are too shaded. This some of the main dominant trees Boyd CA including white pine and red oak, which have low regeneration. Drought, erosion or perhaps fire are integral for maintaining conditions suitable

for wildflowers such as hairy beard-tongue and smooth wild rose (*Rosa blanda*), and grasses such as poverty oat grass (*Danthonia spicata*) and hairy panic grass (*Dichanthelium acuminatum*).

Many wetland plants are sensitive to hydrological changes and pollution. Individual species prefer specific hydrological regimes and are vulnerable to disturbances to those regimes. Some wetland plants such as turtlehead (*Chelone glabra*) and skunk cabbage are specifically associated with seepage and thus a constant flow of ground water. Other species of both seepage swamps and slightly drier areas such as yellow birch, oak fern (*Gymnocarpium dryopteris*), and variegated horsetail (*Equisetum variegatum*) also require an evenly moist soil often associated with ground water.

Degradation of wetland habitats can result from inputs of nutrients and sediment from storm water. Excess phosphorus is most commonly responsible for the rapid growth of algae in Ontario (Ontario Government, 2020). The algae prevent aquatic macrophytes from growing and create other water quality issues. Road-run-off and storm sewer inputs from the surrounding areas are sources of such nutrients to aquatic systems. Runoff from back yards containing lawn fertilizer, as well as dumping of yard waste, can contribute excess nutrients to both forest and wetland communities.

Excess nutrients also favour exotic species which tend to be more tolerant of eutrophic, disturbed conditions such as hybrid cattail. This was observed in a couple of wetlands at Boyd CA. Nutrient and contaminant deposition from runoff or the atmosphere can also affect upland species such as white pine. Most native species, especially specialized ones, are adapted to low levels of nitrate (Brys et al., 2005; Sauer, 1998).

### 4.2.3 Flora Species History: Losses, Gains and Plantings

Flora species richness (i.e., the total number of vascular plant species) observed at Boyd CA has varied since the 1980s. Of the main inventories, MTRCA (1982a) recorded 237 species, OMNR (1998) had 257 species, Kamstra (2002) had 234 species. The only two inventories that had comparable methodology, however, were the ones undertaken by TRCA in 2005 and 2021; these recorded 413 and 471 species respectively. This does not provide sufficient data to assess changes in overall species richness. A closer look at species of conservation concern, however, can give us a better picture of how the natural system is faring.

Since 1981, Boyd CA has had a total of 86 L1-L3 flora species (excluding planted) observed at least once (Appendix 2). Of these, 52 were observed in 2021, and 34 were only observed in previous years (1981-2005). There were also 7 L1-L3 species only observed in 2021, which had either been missed in earlier surveys or had been recognized taxonomically more recently than 2005. These results suggest that there was a slight net loss of native plant species of regional conservation concern over 40 years.

There were 15 naturally occurring species last seen in 2005. Among these are Indian pipe (*Monotropa uniflora*), rattlesnake fern (*Botrypus virginianus*), and shining club-moss (*Huperzia lucidula*). All of these are mycotrophic, at least in early stages of their life cycle. Perhaps soil changes associated with matrix urbanization (possibly related to nitrate deposition) have led to the site no longer being suitable for these plants.

There were four species last seen in 2002, five in 1998, one in 1983, and nine only seen in 1981. Aside from the above-mentioned species that are entirely dependent on fungi for nutrition (at least in the juvenile stage), the

missing species come from a range of habitats and are subject to different impacts. Butternut (last observed in 2005) and rock elm (in 1998) are attacked by butternut canker and Dutch elm disease. Others, such as Indian cucumber root (*Medeola virginiana*), star-flower (*Lysimachia borealis*), rock polypody (*Polypodium virginianum*), and sweet white violet (*Viola blanda*) would have been in the more coniferous to mixed old-growth area and may have been trampled. Some species may have been outcompeted by invasive or native species: especially those of more open habitats. A dead hawthorn was seen in 2021 in the vicinity of where MNR (Steve Varga) found fleshy hawthorn (*Crataegus succulent*) in 1998. The area is now densely shaded by young sugar maple. Similarly, the hairy beard-tongue was still alive and flowering in 2021, but the location is getting encroached upon by denser growth including dog strangling vine and woody saplings.

Some species not observed in 2021 were probably simply missed and may still be present. This is suggested by the rediscovery of several species in 2021 that had not been seen since the 1980s-90s such as fly honeysuckle (*Lonicera canadensis*), wild coffee, interrupted fern (*Claytonia virginiana*), and wild blue phlox.

There were five historical species whose identification is uncertain and for which quality control checks could not be achieved. For example, cuckoo flower found in 1981 could have been either the native *Cardamine dentata* or the European *C. pratensis*; and the pasture thistle (*Cirsium discolor*) could have been one of the more common exotic species. As is the usual practice, these are marked as “cf” in Appendix 2.

Plantings have occurred over decades, including old plantations with native and exotic conifers and shrubs, and more recent restoration plantings. In 2021, there were 23 native and 17 exotic species that had been planted, some of which were also present in naturally occurring populations (Appendix 2). The older plantings of trees (described in Section 4.1.1) are mostly in the western section of Boyd CA. Their age could not be ascertained but judging by the large size of some of the trees, may have been planted early to mid-20<sup>th</sup> century. More recent plantings since the 1990s involve a range of native species. Trees include yellow birch, white cedar, and white pine. Shrubs include grey dogwood and Bebb willow (*Salix bebbiana*). There are also wetland plantings, including tuberous white water-lily, sweet flag (*Acorus americanus*), and great bur-reed (*Sparganium eurycarpum*).

Prairie grasses have been planted in some open areas along the trails, especially northward and near the East Humber River. These include switch grass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), and little bluestem (*Schizachyrium scoparium*). There is one patch of these that qualifies as its own Fresh-Moist Tallgrass Prairie Planting vegetation type (TPO2-A) (Section 4.1.1).

#### 4.2.4 Invasive Flora Species

In 2021, Boyd CA had 142 exotic plant species, accounting for 32% of the total (Appendix 2). Only a small proportion of these are actually invasive. Although the natural cover is largely mature (with some old growth) forest, never having been converted to agricultural use in the period after European settlement, some areas had been cleared for agriculture and disturbance from the urban matrix has encouraged the increase of exotics. Many of the causes are those listed under “sensitivity to development” for native flora, such as,

- Plantings of invasive species. Norway maple was used in plantations, although shrubs, vines, and groundcovers such as lily of the valley (*Convallaria majalis*), periwinkle (*Vinca minor*), and goutweed



(*Aegopodium podagraria*) are present in expanding patches around old homesteads or farmyards. Lily of the valley has invaded parts of the mature forest.

- Trampling, which has reduced native ground flora and regeneration, while encouraging erosion.
- Changes in natural dynamic processes. On the one hand, small ground fires and to some extent erosion have been suppressed, allowing these areas to grow in. On the other hand, canopy gaps seem to have increased due to pests and diseases such as LDD moth, storm damage, and tree decline with no otherwise clear cause. Any canopy gaps that do form are frequently colonized by exotic species instead of native regeneration. In 2021, canopy gaps and former natural barren areas were favored locales for buckthorn, European spindle-tree (*Euonymus europaeus*), garlic mustard, and hedge parsley (*Torilis japonica*).
- Sun loving invasive trees and shrubs make up a large share of the regeneration in successional habitats: for example, honeysuckles (especially Morrow's), autumn-olive, and Siberian elm (*Ulmus pumila*). Dog-strangling vine is also prevalent in such places, as well as in former natural barrens.
- Runoff incorporating sediment, nutrients, and road salt into wetlands favors the expansion of hybrid cattail and common reed. The runoff can be from roads, residential yards, or construction activities.
- Changes to soil resulting from nitrate deposition, earthworms and altered microbial communities (Bryson et al., 2005; Sauer, 1998). Such changes favour garlic mustard and buckthorn.

One new exotic species for the TRCA jurisdiction was discovered at Boyd CA in 2021: lovage (*Levisticum officinale*). This is a garden herb that resembles celery. Although it escapes cultivation occasionally, it is unlikely to become invasive.

### 4.3 Fauna Species Findings for Boyd Conservation Area

This section reports primarily on the fauna species observed within the Conservation Area in the 2021 fauna inventory (Section 3.2), with a comparison to a similar inventory conducted in 2016 and discussion of relevant historical records. Observations from the 2021 and 2016 fauna inventories as well as incidental observations of herpetofauna and mammals are discussed in the species representation section. Additional detail is provided in subsequent sections on Species of Regional and Urban Concern (those ranked L1-L4), and on historical Species of Regional and Urban Concern records.

#### 4.3.1 Fauna Species Representation

Table 8 summarizes the vertebrate fauna species counts for the CA over the period 2012 to 2021, primarily from the 2021 and 2016 inventories. Appendix 3 lists the species observed, along with scientific names and L-ranks. Fauna species richness (number of species) at the Boyd CA stands at 82 species. Species richness per unit area in natural cover generally increases with increasing patch size, habitat quality, and increasing habitat diversity (e.g., of vegetation communities and of physical structure) (Rybicki and Hanski, 2013).

**Table 8:** Fauna species and Species of Regional (ranked L1-L3) and Urban Concern (ranked L4) counts for Boyd CA 2012 - 2021.

Group	Species Count	Count of Species Ranked L1-L3	Count of Species Ranked L4
Birds	58	11	20
Amphibians and reptiles*	11	7	4
Mammals*	13	0	8
Total	82	18	32

\*observations of reptiles and mammals are incidental to the inventory protocols

Boyd CA has received a relatively large amount of attention over the years with the TRCA having conducted a total of three fauna inventories. In addition to these inventories, which are primarily concerned with breeding birds, the TRCA has installed two forest bird monitoring stations which have been visited twice every breeding season since 2008 as part of the regional Long-Term Monitoring Program. In spring of 2005 the site was visited with the intention of assessing the status of *Ambystoma* salamanders in the wetlands using minnow-traps. From 2005 to 2018 an array of cover boards was installed and checked multiple times every spring to assess the population of Red-backed Salamander (*Plethodon cinereus*) (Figure 9). The 2021 inventory included running a bat acoustic monitoring device at the south end of the property which resulted in the inclusion of two species considered probable breeders in the area. Finally, and much more recently, TRCA staff have pulled a few fauna records from the online iNaturalist database. These latter records (2019 to 2021) have been included in the current fauna list but all records from before 2012 are given archive status since they do not satisfy the 10-year current data threshold. For the sake of completeness and to facilitate any data comparisons these earlier, archival records have been included in the list presented in Appendix 3.



Figure 9: Location of Plethodontid salamander cover board array in the northeast section of Boyd CA (photo: TRCA 2016).

### 4.3.2 Fauna Species of Concern

The 2021 fauna survey recorded 6 bird and 2 herpetofauna Species of Regional Concern (Map 8), ranked L3. For the current 10-year period, 2 additional L3 bird species (*Winter Wren*, *Troglodytes hiemalis*, and *Brown Creeper*, *Certhia americana*) can be added from the inventory and monitoring conducted in 2016. The monitoring station also added the only *Ovenbird* (*Seiurus aurocapillus*, ranked L2) for the current period in 2015, and reports from members of the public confirmed the presence of *Hooded Merganser* (*Lophodytes cucullatus*) and a *Bank Swallow* (*Riparia riparia*) colony (with 30-40 nest cavities) in 2012 and 2013 respectively. An additional 5 L1-L3 ranked herpetofauna species can be added from TRCA staff observations over the same period bringing the total number of Species of Regional Concern for the current 10-year period to 18 species.

Given the location of Boyd CA within a largely urban landscape it is important to also highlight the presence of healthy populations of L4 species, Species of Urban Conservation Concern, at the site. The species list for the current 10-year period includes 32 L4 species; all but 2 of these species were reported in the 2021 inventory with just *Tree Swallow* (*Tachycineta bicolor*) and *Wood Duck* (*Aix sponsa*) absent that year. Two bat species – *Big Brown Bat* (*Eptesicus fuscus*) and *Hoary Bat* (*Lasiurus cinereus*)– were assessed as probable breeders on the site. Both of these species have been assigned an L4 rank. There are ample opportunities for these species to establish maternity colonies within the CA, *Big Brown* requiring undisturbed roof spaces in a variety of buildings and *Hoary* preferring dense canopy foliage of tree cavities.

Almost all the L2 and L3 species at Boyd CA are represented by very low numbers of territories and so the significance of these species' presence or absence in any one year is difficult to assess. One species, however, the L3 ranked *Wood Thrush* (*Hylocichla mustelina*), continues to be well represented at the site with 7 territories

mapped in both 2016 and 2021. The rather high number (14 territories) indicated for the entire 10-year period is likely exaggerated by double-counting of territories that move between years. The main concentration of territories is located in the high-quality forest habitat in the northeast section of the park, east of the river, although there are 2 territories indicated for the southern quarter, west of the river.

The 2021 inventory was started too late in the season to allow for an assessment of either early spring frog or *Ambystoma* salamander populations which historically have been concentrated in the wetlands in the northeast sector of the park. The most recent Wood Frog (*Lithobates sylvatica*) records from TRCA staff are from 2016 when a full chorus was reported for the aforementioned location; more recently (2019) egg masses and pairs were photographed by an iNaturalist contributor. Night visits by TRCA staff in 2021 reported a medium chorus of Spring Peeper (*Pseudacris crucifer*) persisting into early June.

Yellow-spotted Salamanders (*Ambystoma maculatum*) – ranked as L1 - were still being found under the salamander cover boards as recently as 2018 (the last year of this specific project), but the bulk of the records for Boyd CA are from the targeted search (using minnow-traps) conducted in 2005. This same search in 2005 also provided the only record of Jefferson Salamander (*Ambystoma jeffersonianum* complex) for the park which means that the species cannot be included in the current 10-year fauna species list.

#### 4.3.2.1 Regionally Rare Species

Regionally rare species are those reported as probable or confirmed breeders in fewer than 10 of the forty-four 10×10 km UTM grid squares in the TRCA jurisdiction (TRCA 2017a). Over the current 10-year period only Yellow-spotted Salamander satisfies this criterion. Jefferson Salamander is likewise considered regionally rare, it is quite possible that – as with Yellow-spotted – the species is persisting in the park but more in-depth surveying in the spring would be needed to confirm its presence.

Jefferson Salamander is listed as an Endangered Species at Risk in Ontario. There are three other species occurring at Boyd CA which are considered Species at Risk: Wood Thrush (Special Concern), Eastern Wood-Pewee (*Contopus virens*, Special Concern) and Bank Swallow (Threatened). None of these latter three species are considered regionally rare. Wood Thrush and Eastern Wood-Pewee are well-represented at Boyd CA with 7 and 14 territories respectively in 2021. A Bank Swallow colony of between 30 and 40 nests was reported from a stretch of riverbank 500m south of Rutherford Road in 2013 but neither the 2016 nor 2021 inventories repeated the observation. It is possible that the 2013 colony was a “spill-over” from the larger colony located about 500 m upriver from Rutherford Road, numbering as many as 180 cavities in 2009 and still with 110 cavities in 2021.

#### 4.3.2.2 Fauna Sensitive to Development

The scoring of species for sensitivity to development (Section 3.1; TRCA, 2017a) considers the large number of impacts related to local land use, both urban and agricultural, that affect the local fauna. Two categories are of importance. The first involves changes that affect the breeding habitat of the species in question. An example would be alteration of the composition and structure of a vegetation community, for example through the removal of dead wood and clearing of shrub understory. The second category relates to changes that directly affect individuals of the species. Examples include:

- Increased predation from an increase in the local population of predators that thrive alongside human developments (e.g., Blue Jays (*Cyanocitta cristata*), American Crows (*Corvus brachyrhynchos*), squirrels (*Sciuridae*), Raccoons (*Procyon lotor*), and House Cats (*Felis catus*).
- Parasitism (facilitation of access for the Brown-headed Cowbird (*Molothrus ater*), a brood parasite, which prefers open, edge-type habitat).
- Competition (for nest-cavities with bird species such as House Sparrows, *Passer domesticus*; and European Starlings, *Sturnus vulgaris*).
- Flushing (causing disturbance and abandonment of the nest).
- Sensitivity to pesticides (bioaccumulation).

A total of 37 of the L1-L4 ranked species found at Boyd CA over the past 10 years score highly on sensitivity to development (Appendix 3; Map 9), including all 18 of the Species of Regional Concern (L1 – L3), representing a variety of sensitivities in what is a largely urbanized landscape.

Given the urban land use in much of the surrounding landscape, there are many negative matrix influences impacting the natural ecosystem at Boyd. But even in rural landscapes many of the negative influences associated with urbanization can be transferred deep within an otherwise intact natural matrix by trail networks used by large numbers of people originating from distant urban and suburban centres. From the perspective of wildlife, humans (and dogs) within their habitat are competitors and/or predators, and to be avoided.

A study that tested the effect of people walking through a forest during the period that birds were establishing territories prior to nesting determined that two or three people walking through an area while talking to each other, repeated twice a day, resulted in some birds avoiding that area for territory establishment. The number of territories was reduced by 15% and the species richness was also reduced 15% (Bötsch et al. 2017). Other research demonstrates that many bird species respond to human presence during nesting by decreased nest-attentiveness or nest-abandonment, leading to reduced reproduction and survival. Where trail-use is low during territory establishment (e.g., April, May), but increases later (e.g., June, July), birds may establish nests but later abandon them when disturbance becomes too high. Significant negative gradients in abundance and richness of nesting bird species occurred in the vicinity of active forest trails compared to seldom-used forest trails (Bötsch et al. 2018). In another study, dog-walking in natural habitats caused a 35% reduction in bird diversity and a 41% reduction in abundance, with even higher impacts on ground-nesting species (Banks and Bryant, 2007). Similarly, clearing of forest understory to accommodate trails, and the introduction of invasive species from trails both displace sensitive low-nesting species.

Despite all of this, some species have become surprisingly habituated to the presence of humans and are able to thrive even in the most disturbed of habitats. The impact from such human disturbances tends to be concentrated very much at ground-level and species that habitually nest and forage in the mid- and upper-canopies appear to be more successful and persistent than their ground-nesting and ground-foraging counterparts. Three bird species scoring maximum for sensitivity to development (Ruffed Grouse, *Bonasa umbellus*; Ovenbird, and Winter Wren) were not reported in either the 2016 or the 2021 inventories and it seems likely that at least for Ruffed Grouse and Ovenbird (both ground-nesting species) the area is simply too disturbed for them to persist as nesting species. Meanwhile, mid- and upper-canopy species such as Scarlet

Tanager (*Piranga olivacea*), Rose-breasted Grosbeak (*Pheucticus ludovicianus*), Pine warbler (*Setophaga pinus*), and Eastern Wood-Pewee seem to be thriving (Figure 10).



**Figure 10:** Scarlet Tanager is one of several sensitive canopy-nesting species that are managing to persist at Boyd CA (photo: TRCA, 2021).

The local populations of several sensitive species are persisting at the same level as in the previous decade. The species representation recorded in the 2016 and 2021 inventories are remarkably similar, and this stability seems to stretch at least as far back as the 2005 inventory for many species (see Appendix 3 to compare the three years). Even relatively low-nesting species such as Mourning Warbler (*Geothlypis philadelphia*) and Indigo Bunting (*Passerina cyanea*) are maintaining the same abundance.

All the herpetofauna species are in part terrestrial, Spring Peepers and Wood Frogs spending most of their life foraging on the forest floor. Likewise, the four “salamander” species (including Eastern Newt, *Notophthalmus viridescens*) spend at least part of their life cycle in the forest ground layer and the persistence of these species is somewhat dependent on the layer of leaf-litter and downed woody material remaining intact and undisturbed by off-trail hikers and dogs.

#### **4.3.2.3 Area Sensitive Fauna**

Fauna species deemed area sensitive require  $\geq 5$  ha of contiguous habitat; those scoring at the high end for this criterion require  $>100$  ha (TRCA, 2017a). Some species of forest birds that require large total habitat area can utilize multiple patches across the landscape to meet this need; for this group, the overall proportion of forest cover within the larger landscape is the important limiting factor (Arroyo-Rodriguez et al., 2020). Area sensitivity

for various species relates to a variety of underlying factors. The needs for isolation within a habitat block during sensitive periods (e.g., the nesting season) and for foraging requirements for sparsely distributed food items are examples.

As has been observed at so many sites within the urban and urbanizing landscape throughout the region, the availability of seemingly sufficient areas of habitat is repeatedly trumped by the degree of negative matrix influence and the quality of the available habitat. A good example is the presence or absence of Ovenbirds. This species requires at least 20 ha of continuous forest cover, a criterion that is satisfied at Boyd CA, and even more so at the larger Kortright Centre for Conservation immediately to the north. However, Ovenbirds are barely managing to hold a single territory at either Boyd (the most recent record is from the forest bird long-term monitoring station in 2015) or at Kortright (there are no records from the extensive inventory conducted at this 380-ha site in 2021).

Nevertheless, the current fauna list for Boyd CA includes 9 area sensitive bird Species of Regional Concern (L1 – L3) and a further 7 bird Species of Urban Concern (L4, Map 10). Again, many of these area sensitive species are mid- and upper canopy nesting species such as Great-crested Flycatcher (*Myiarchus crinitus*), Pine Warbler, and Wood Thrush. Despite the high visitor pressure at Boyd CA, it appears that the relatively large extent of forest habitat provides plenty of opportunities for tree cavity-nesters such as Hairy Woodpecker (*Picoides villosus*), Pileated Woodpecker (*Dryocopus pileatus*), and White-breasted Nuthatch (*Sitta carolinensis*).

Several of the sensitive herpetofauna species also score highly for area sensitivity. This is largely a result of these species requiring a mixture of habitat types and the larger an area is then to some extent the more likely that both wetland breeding pools and upland foraging opportunities will be available. At Boyd CA the majority of the Wood Frog, Spring Peeper, and salamander records are from the extensive patch of upland forest and the adjacent lower moist forest which contains the spawning pools.

#### **4.3.2.4 Fauna Sensitive to Patch Isolation**

Sensitivity to patch isolation considers the overall response of fauna species to fragmentation and isolation of habitat patches from one another. One underlying consideration is the physical ability, or the predisposition, of a species to move about within the landscape and how this ability is affected by the connectivity of habitat. A second is the potential impact that roads and other habitat breaks have on fauna species that need to be mobile. Bird species generally score lower than herpetofauna for the latter consideration (although they do forage and move along connecting corridors). Most herpetofauna score very highly because their life cycles require them to move between different habitat types; their mobility exposes them to impacts, most often roadkill. At the population level, birds too will be affected if the need for adult birds to forage for food during the nestling and fledgling stage of the breeding season is not provided for.

Ruffed Grouse is the only bird species listed for Boyd CA that is considered sensitive to patch isolation and there have been no records of the species at this site since 1995. One important consideration for species scoring highly for this criterion is that if a sensitive species is extirpated from an isolated habitat patch the opportunities for the species to return to such an area are very limited. Ruffed Grouse are relatively mobile compared to the various herpetofauna species, but they are still very susceptible to roadkill since they tend either to run across roads or to fly low and direct. It is difficult to accurately assess when in the past grouse may have been a

common feature of the landscape around Boyd (the species is likewise apparently very scarce at Kortright) but it is likely that a combination of the recent extensive residential development and the heavily travelled roads make it difficult for the species to attempt to return.

All herpetofauna and many mammals are sensitive to patch isolation, and all but the hardiest species have disappeared from the more urbanized landscapes, such as the City of Toronto. However, areas such as Boyd CA which provide all of the various habitat types required for some of these species to complete their life cycles still have healthy populations of Wood Frogs and Spring Peepers. Individuals from these local populations never need to venture anywhere near roads and bicycle trails as they move from upland overwintering and foraging habitat to wetland breeding habitat and back again. As long as provision is made for easy access to and from the breeding ponds, and as long as their upland forest habitat remains intact and undisturbed, the frogs and salamanders will be able to persist locally.

#### **4.3.2.5 Fauna Habitat Specialists**

Fauna species that score high under the habitat dependence criterion (TRCA, 2017a) are considered habitat specialists. These species exhibit a combination of very specific habitat requirements that range from the microhabitat (e.g., decaying logs, aquatic vegetation) to particular moisture conditions, vegetation structure or spatial landscape structures, to preferences for certain vegetation community series and macro-habitat types.

A total of 14 fauna species at Boyd CA are considered habitat specialists (Map 11), from species with a microhabitat requirement for suitable bank substrate for nest-cavities (Bank Swallow and Northern Rough-winged Swallow, *Stelgidopteryx serripennis*) to Pileated Woodpeckers' need for trees large enough to accommodate their extensive excavations (Figure 11). The quality of the deciduous and the mixed forest stands provides ample foraging for Scarlet Tanagers and Wood Thrushes, and the extensive coniferous component allows for a thriving population of Pine Warblers.





**Figure 11:** Pileated Woodpeckers are dependent on mature trees big enough to accommodate their large nest cavities (photo: TRCA, 2014).

A healthy functioning system will accommodate a whole suite of species that are adapted to the habitat types at the site and will allow those species to thrive and breed successfully. As the quality of the habitat improves, so will the representation of flora and fauna species associated with it. In this way, representation by self-sustaining populations of diverse species (which varies from species to species) over the long term is an excellent measure of the health of a natural system.

## 5.0 SUMMARY

The 149-ha Boyd Conservation Area is located within the urban landscape but is part of the very large natural corridor along the East Humber River extending north into the rural zone. It consists of extensive patches of forest, with small pockets of wetlands along seepage zones and oxbows. Open and semi-open areas (including meadow and successional natural cover as well as manicured picnic grounds) occur on the floodplain. The site is dominated by deciduous and mixed forest, with wetlands in terrace areas and on the floodplain. The natural cover has the potential to maintain populations of many flora and fauna Species of Regional and Urban Concern (other than ground- to low-nesting breeding bird species), and to contribute to 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. Inventory data is primarily from the surveys conducted in 2021 with adjunctive data going back to 1981. Existing datasets document a total of 87 vegetation types. Communities are largely forest (53% of the natural cover) with smaller areas of successional, wetland and dynamic habitats. This is broken down into 30 forest, 16 plantation, 10 dynamic, 11 successional, 2 meadow, 15 wetland, and 3 aquatic vegetation types.
2. Since 2005 which is as far back as comparisons can be made, changes to the overall vegetation community types have been modest, but there is evidence that the forest is under stress. Forest and meadow cover have decreased, while successional cover has increased. Some sections of Boyd CA are experiencing tree decline due to pests and diseases, storm damage, and unknown factors. LDD moth was particularly prominent in 2021.
3. Vegetation communities of conservation concern are found among forests, wetlands, and dynamic habitats. Forest communities are of local conservation concern due to their age and structure regardless of rank. All support flora Species of Conservation Concern.
4. A total of 444 naturally occurring flora species have been recorded over the last 15 years. Among them are 52 Species of Regional Concern (ranked L1-L3) and 95 Species of Urban Concern (ranked L4). Species of Concern were associated with forest, wetland, and semi-open riparian successional and dynamic communities. Native species richness is high with natives accounting for 68% of the total floristic biodiversity. This is comparable with similar-sized sites that are partly urbanized such as Lake St. George Field Centre (TRCA, 2017b).
5. Six regionally rare plant species were found in 2021. Smooth rock cress is known only from Boyd CA and Rouge National Urban Park.
6. Recreational use and influences from the surrounding urban landscape are driving factors affecting the wellbeing of native species throughout Boyd CA. It is attractive and accessible, drawing many users. The main disturbances affecting it at present are trampling and invasive species (plants, pests, and diseases). Yard waste dumping adjacent to residences and storm water runoff in the wetlands and riparian areas also are local impacts. Deer browse is also somewhat elevated and probably affecting the flora.
7. Invasive plants are widespread. They are mostly not dominant but are increasing at the expense of native plants which are not regenerating well. Garlic mustard is prevalent in forest communities. Forests are at risk from invasion by escaped ground covers such as periwinkle, goutweed, and lily-of-the-valley. In wetlands, common reed is the main threat. Open and semi-open areas are being invaded by dog-strangling vine, buckthorn, honeysuckle, and autumn-olive.
8. LDD moth, Dutch elm disease and emerald ash borer are the main pests and diseases observed. Dutch elm disease may have eradicated rock elm from the site, and butternut canker has probably eliminated butternut since 2005.

9. The fauna inventories conducted in 2016 and 2021 combined with incidental observations over the past 10 years have reported 31 bird species, 11 herpetofauna species, and 6 mammal species of Regional and Urban Concern for a total of 48 such species. This figure is on par with similarly sized near-urban and urbanizing locations such as Heart Lake (48 SOC), Milne Reservoir (43 SOC) and Bolton Camp (46 SOC).
10. Yellow-spotted Salamander was the only regionally rare native fauna species recorded at Boyd CA over the current 10-year period. There have been no specific searches conducted for the likewise regionally rare Jefferson Salamander which was last observed on site in 2005. It seems likely that this latter species should still be present since its requirements are quite similar to those of Yellow-spotted Salamander.
11. Three provincial fauna Species at Risk (SAR) were recorded over the past 10 years. Eastern Wood-pewee and Wood Thrush are listed as Special Concern, Bank Swallow as Threatened. Jefferson Salamander, last reported in 2005, is listed as Endangered.
12. Despite the amount of human activity in the park there are very healthy populations of several L4 bird species. Only one higher ranking bird species (Wood Thrush) appears to be likewise thriving although several other L3 species are at least maintaining the same low numbers of territories over the past two decades (Mourning Warbler, Scarlet Tanager). Bird species that habitually remain in the forest canopy appear to be able to thrive in what is otherwise a rather disturbed location.
13. The absence of sensitive ground-nesting species in the 2016 and 2021 inventories is likely a result of ongoing human activity throughout the site, particularly off-trail incursions and the presence of dogs in the otherwise productive north-east section of the park.
14. The northeast sector of the park is especially rich fauna-wise, the intact mature forest in combination with the several forest pools support the majority of the higher-ranking bird and amphibian species.

## 5.2 Recommendations

Boyd CA is a relatively extensive property within an urbanized landscape and as such is a popular recreational destination for many people, both locals and visitors from further afield. This visitor pressure no doubt exerts significant impacts on the natural features of the park. It is unrealistic to expect to be able to curb these impacts entirely although some mitigation measures could be implemented throughout the property. There is one discrete area within the park that would certainly benefit from targeted visitor control measures. The area referred to is the patch of intact forest in the northeast quarter of the property, an area of about 37 ha (25% of the total area) that includes mature upland deciduous and lower, more moist, old growth mixed forest which contains important amphibian breeding pools. It roughly corresponds to the ANSI (Map 2). The forest in this section provides habitat for three of the four Species at Risk found in the park. It also has flora Species of Regional Concern that are susceptible to trampling. The following recommendations should be applied to this section of the park:

1. All informal trails in this area should be removed and actively discouraged.
2. Formal trails should be limited to the edges of this area except for the single location where a connecting trail bisects the area.

3. Ideally, the formal trails in the lower moist forest should all be converted to raised boardwalks, allowing the safe passage of salamanders and other terrestrial fauna. Such boardwalks are also effective at persuading people to stay on-trail.
4. Interpretive signage should direct visitors to remain on the formal trail and to keep dogs leashed at all times. It would be better to prohibit all dog-walking in this sensitive area, but this would be extremely difficult to enforce.
5. The limited trails in this area should be designated single use trails. All bicycles should be prohibited from this sensitive area. There is an extensive network of trails – both formal and informal - throughout the rest of the park.
6. This area should be designated a protected Nature Reserve area where the only activity allowed is hiking and nature viewing.

For Boyd CA as a whole, we recommend 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 would 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 Boyd CA, 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. Adopt a “proforestation” approach in which improving/restoring the function of existing forest and supporting persistence and regeneration of native flora takes precedence over extensive plantings. This appears to be more effective in protecting biodiversity and carbon storage than planting new forests (Moomaw et al., 2019). It is also realistic considering the limited land base available for tree planting and the desirability of maintaining some open and dynamic communities along with picnic facilities.
- c. As recommended in the past by TRCA (2013), opportunities to secure additional land should be explored in the vicinity to increase the size of the natural system. In particular, the National Golf Club is located adjacent to the old-growth forest at Boyd CA, where it provides a buffer of lower-intensity land use between the forest and the residential areas further east. Consideration should be given to including this land in the provincial Greenbelt whose boundary currently encompasses Boyd CA. In the long term, it could be targeted for acquisition and restoration. An enlarged natural system would be better able to accommodate and buffer public use.

#### 2. Manage Public Use

Boyd CA is subject to moderate public use, and user pressure is likely to increase. While this contributes greatly to the public good through nature appreciation, exercise, and education, it can negatively affect natural systems if not managed. The numbers of sensitive flora species and of breeding bird species appear to have declined slightly. It is unlikely that sensitive ground-nesting bird species will be able to

thrive at the site, however, the following management strategies should be effective in maintaining the flora and fauna diversity.

- a. The forest appears to be under some stress, so it would be inadvisable to introduce intensive forms of recreation that might increase this stress (for example, off-leash dog areas, mountain biking, ropes courses). An increase in tree mortality could also lead to hazards for park users.
- b. Some of the trails, fences, and boardwalks need repairs and/or replacement. More durable fences should be considered, such as the chain-link fences that the City of Vaughan has installed at Pine Valley Woodlots, successfully protecting the forest ground flora. Durability should be combined with attention to aesthetic design.
- c. Off-leash dog facilities should be provided in the neighbourhood and beyond in low-impact areas to reduce user pressure on Boyd CA.

### 3. Specific Restoration Measures

- a. Look to create an invasive species management plan for the park, especially in the old growth forest / ANSI area and in the vicinity of canopy gaps and trails.
- b. Follow-up will be needed in canopy gaps and where Norway maples have been removed.
- c. Consider small, prescribed burns in canopy gaps to encourage regeneration of oak, pine, and other native trees as well as certain species of conservation concern. Fire may make ground conditions more favorable for these and less favorable for invasives.
- d. Propagate and plant native species (especially those present and past species found in Appendix 2, including hairy beard-tongue and smooth rock-cress). Use local seed sources and monitor these plantings.
- e. Ensure effective and adequate passage (e.g., tunnels and culverts) for frogs, snakes, and mammals across or under trails and driveways.
- f. Address the issue of residential yard-waste dumping onto the site, particularly along the northeast boundary ravine.
- g. Promote stewardship on adjacent properties (residences and National Golf Club) through replacement of invasive ornamentals such as Norway maple with native species.

### 4. Further Monitoring Opportunities

- a. Investigate what may be causing tree decline at Boyd CA through continued work at the long-term forest vegetation monitoring plot and spot examinations of areas of tree decline in plantations and natural forests at Boyd CA.
- b. Re-initiate some form of monitoring of amphibians, including *Ambystoma* salamanders, at Boyd CA's wetlands.

## 6.0 REFERENCES

- Arroyo-Rodríguez, V., Fahrig, L., Tabarelli, M., Watling, J.I., Tischendorf, L., Benchimol, M., Cazetta, E., Faria, D., Leal, I.R., Melo, F.P.L., Morante-Filho, J.C., Santos, B.A., Arasa-Gisbert, R., Arce-Peña, N., Cervantes-López, M.J., Cudney-Valenzuela, S., Galán-Acedo, C., San-José, M., Vieira, I.C.G., Slik, J.F., Nowakowski, A.J. and Tschardtke, T. 2020. Designing optimal human-modified landscapes for forest biodiversity conservation. *Ecol. Lett.*, 23: 1404-1420. Available on-line at: <https://doi.org/10.1111/ele.13535> [Accessed 19 February 2021].
- Banks, P.B. and Bryant, J.V. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biol. Lett.* 3:611-613. <http://rsbl.royalsocietypublishing.org/content/3/6/611.full.pdf> [Accessed 14 October 2020].
- Bötsch, Y., Tablado, Z., and Jenni, L. 2017. Experimental evidence of human recreational disturbance effects on bird-territory establishment. *Proc. R. Soc. B.* 284. <http://dx.doi.org/10.1098/rspb.2017.0846> [Accessed 15 October 2020].
- Bötsch, Y., Tablado, Z., Scherl, D., Kéry M., Graf, R.F. and Jenni, L. 2018. Effect of Recreational Trails on Forest Birds: Human Presence Matters. *Front. Ecol. Evol.* 6:175. <https://doi.org/10.3389/fevo.2018.00175> [Accessed 11 February 2021].
- Brouillet, L., Coursol, F., Meades, S.J., Favreau, M., Anions, M., Bélisle, P., and Desmet, P. 2010+. VASCAN, the Database of Vascular Plants of Canada. <http://data.canadensys.net/vascan/> [Accessed 16 December 2021].
- Brys, R., Jacquemyn, H., Endels, P., de Blust, G., and Hermy, M. 2005. Effect of habitat deterioration on population dynamics and extinction risks in a previously common perennial. *Conserv. Biol.* 19(5): 1633-1643.
- Cadman, M.D., Sutherland, D.A., Beck, G.G., Lepage, D., and Couturier, A.R. (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.
- Hoffman, D.W. and Richards, N.R. 1955. Soil Survey of York County. Map. Guelph, ON: Experimental Farms Service, Canada Department of Agriculture, and the Ontario Agricultural College. <https://sis.agr.gc.ca/cansis/publications/surveys/on/on19/index.html> [Accessed 19 February 2021].
- Kamstra J. 2002. Pine Valley Link Environmental Impact Study. Markham, ON: Gartner-Lee Ltd.
- 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.

- Moomaw, W.R., Masino, S.A., and Faison, E.K. 2019. Intact Forests in the United States: proforestation mitigates climate change and serves the greatest good. *Frontiers in Forest and Global Change* 2(27): 1-10.
- MTRCA, 1982a. Biophysical Inventories of the Boyd Management Unit, Boyd Conservation Area Resource Inventory Report. [Metropolitan] Toronto Region Conservation Authority.
- MTRCA, 1982b. Environmentally Significant Areas Study. [Metropolitan] Toronto Region Conservation Authority.
- Oldham, M. 2021. Ontario Species Lists (Vascular Plants). Peterborough ON: Ontario Ministry of Natural Resources and Forestry Natural Heritage Information Centre.
- OMNR [Ontario Ministry of Natural Resources] 1998. Boyd ANSI (Area of Natural and Scientific Interest). Aurora: OMNR Aurora District.
- Ontario Government. 2020. Environment and Energy: *Blue-green algae*. Available on-line at: <https://www.ontario.ca/page/blue-green-algae> [Accessed 16 November 2020].
- Rybicki, J. and Hanski, I. 2013. Species–area relationships and extinctions caused by habitat loss and fragmentation. *Ecol. Lett.* 16: 27–38.
- Sauer, L. 1998. *The Once and Future Forest*. Washington, DC: Island Press.
- Toronto and Region Conservation Authority (TRCA). 2007a. The Terrestrial Natural Heritage System Strategy. Toronto Region Conservation Authority. Available on-line at: <https://trca.ca/conservation/greenspace-management/terrestrial-natural-heritage/> [Accessed 15 October 2020].
- Toronto and Region Conservation Authority (TRCA). 2007b. Setting Terrestrial Natural Heritage System Targets. Toronto and Region Conservation Authority. Available on-line at: <https://trca.ca/conservation/greenspace-management/terrestrial-natural-heritage/> [Accessed 15 October 2020].
- Toronto and Region Conservation Authority (TRCA). 2007c. Terrestrial Natural Heritage Program Data Collection Methodology. Toronto and Region Conservation Authority. Available on-line at: <https://trca.ca/conservation/greenspace-management/terrestrial-natural-heritage/> [Accessed 15 October 2020].
- Toronto and Region Conservation Authority (TRCA). 2013. The Living City Campus Terrestrial Biological Inventory and Assessment. Toronto and Region Conservation Authority. [SECTION 1 – POLICY \(trcaca.s3.ca-central-1.amazonaws.com\)](https://trca.ca/conservation/greenspace-management/terrestrial-natural-heritage/) [Accessed 12 January 2021].
- Toronto and Region Conservation Authority (TRCA). 2017a. Scoring and Ranking TRCA’s Vegetation Communities, Flora, and Fauna Species. Toronto and Region Conservation Authority. Available on-line at: <https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2016/02/17173841/Ranking-Scoring-Protocol-Final.pdf> [Accessed 15 October 2020].

Toronto and Region Conservation Authority (TRCA). 2017b. Lake St. George Field Centre Terrestrial Biological Inventory and Assessment. Toronto and Region Conservation Authority. [SECTION 1 – POLICY \(trca.ca\)](#) [Accessed 31 January 2022].

Toronto and Region Conservation Authority (TRCA). 2021. Humber Arboretum Study Area Terrestrial Biological Inventory. Toronto and Region Conservation Authority. [Humber-Arboretum Terrestrial Inventory Report FINAL 2021 CompressedWeb.pdf \(trcaca.s3.ca-central-1.amazonaws.com\)](#) [Accessed 19 January 2022].

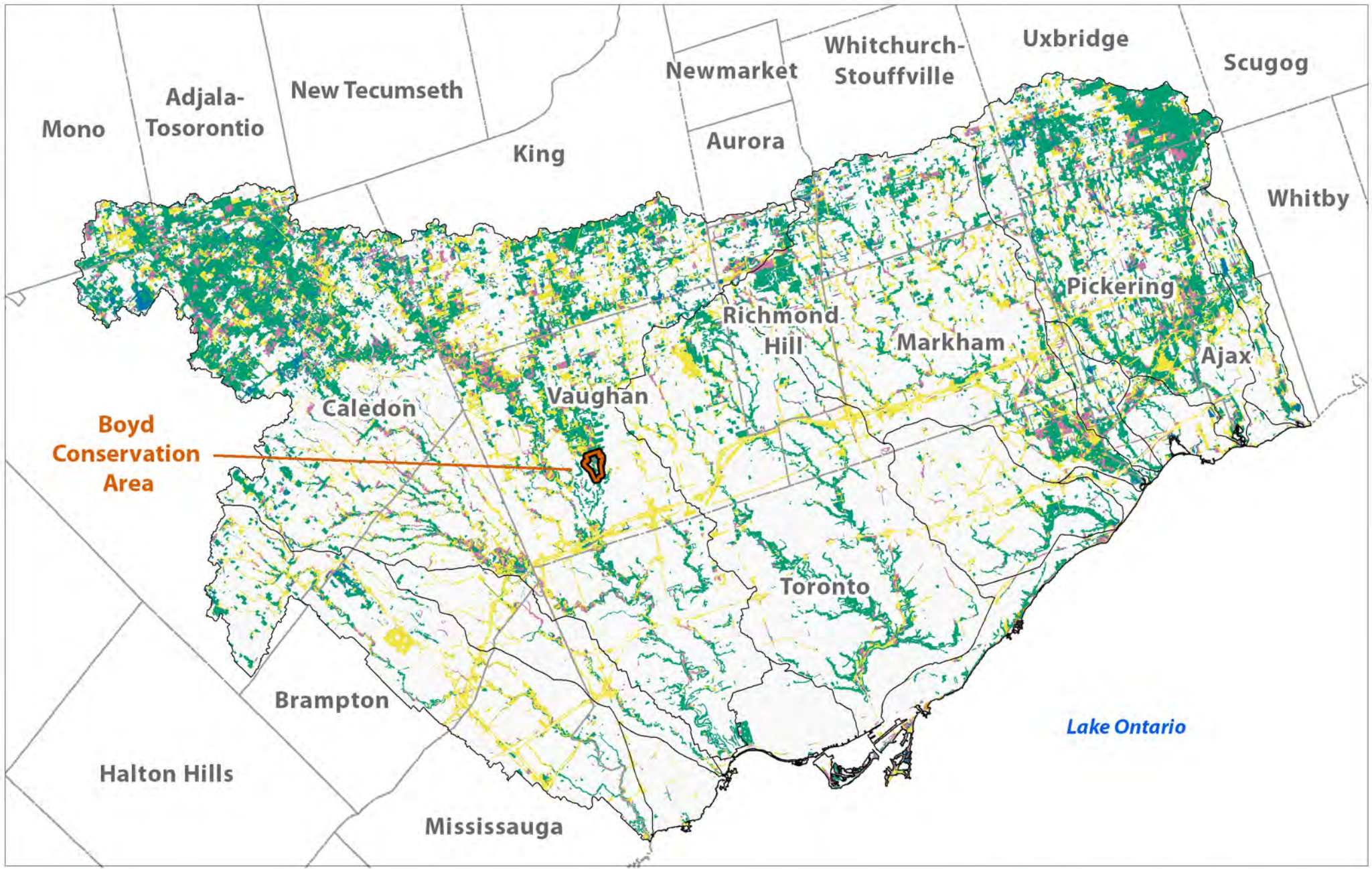
Toronto and Region Conservation Authority (TRCA). 2022. Sherwood Park Environmentally Significant Area Terrestrial Biological Inventory. Toronto and Region Conservation Authority. DRAFT.





[www.trca.ca](http://www.trca.ca)















  
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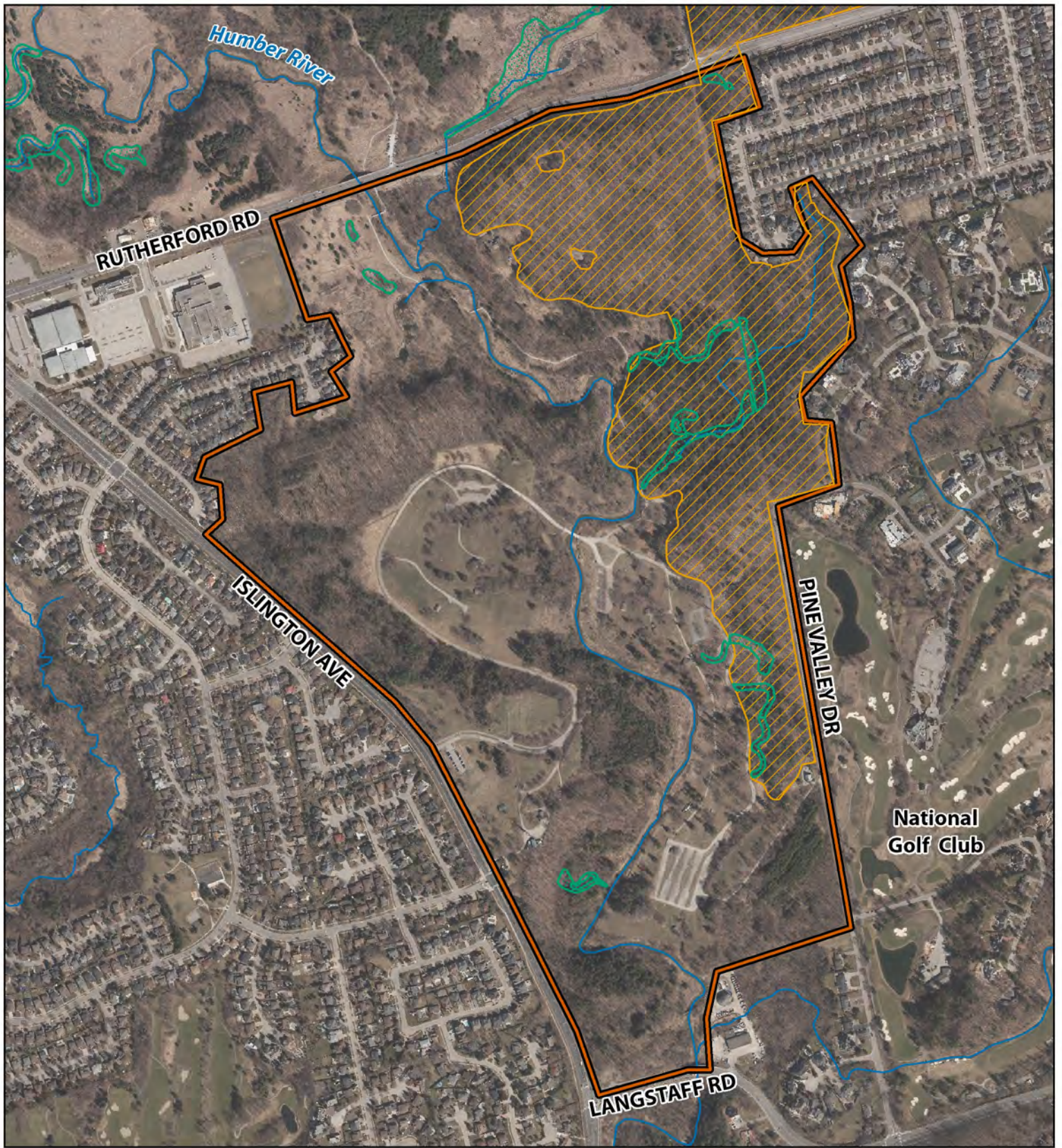

  
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Date: January 2022  
 \* Landscape analysis based on 2017 Orthophotography


**Map 1:**  
**Boyd Conservation Area**  
**in the Context of Regional**  
**Natural Cover**

<b>Natural Cover *</b>		 Boyd CA
 Forest	 Successional	 TRCA Jurisdiction
 Meadow	 Wetland	 Watershed
 Beach/Bluff		 Municipal Boundary








**Toronto and Region Conservation Authority**

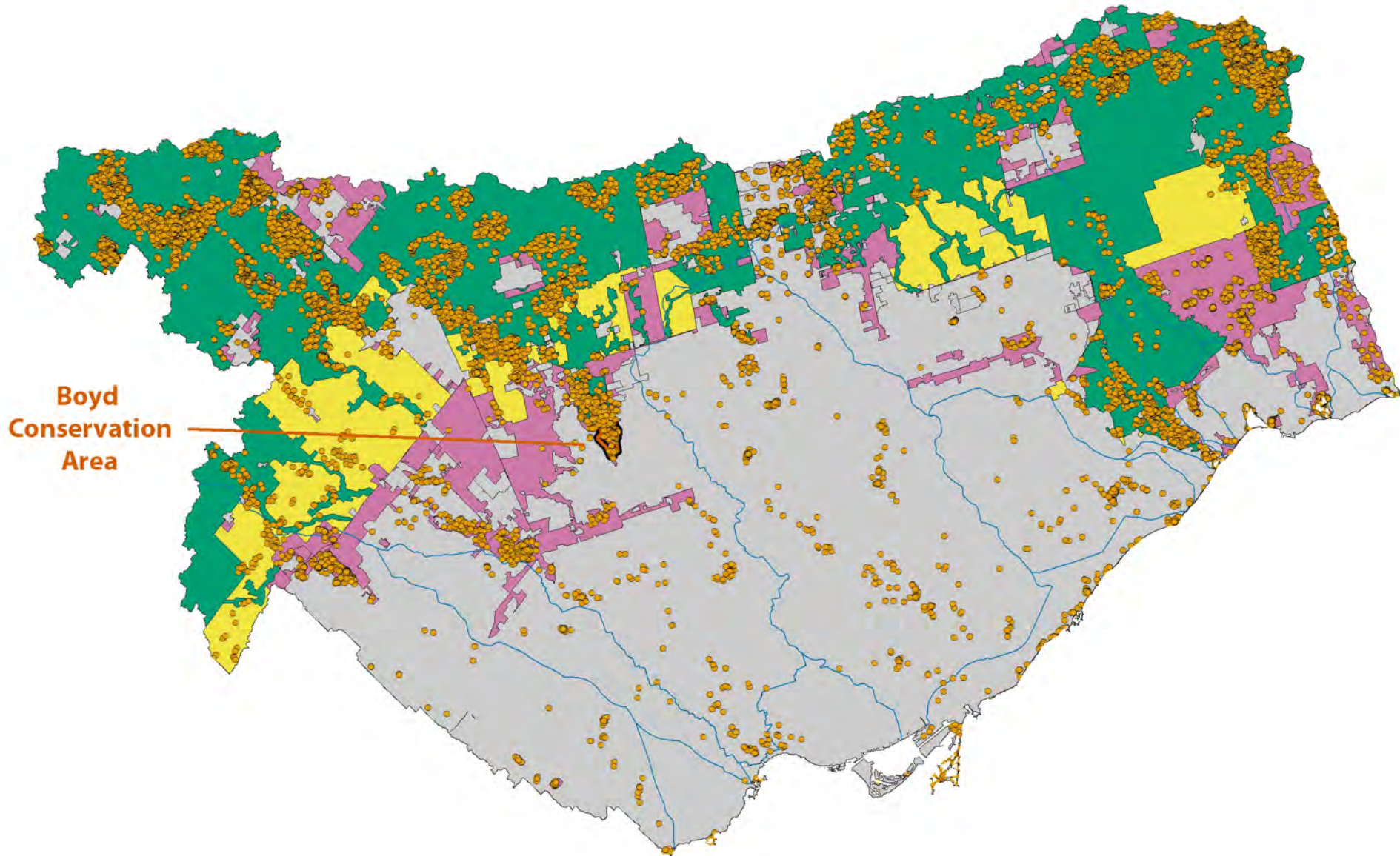


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 Orthophoto: Spring 2020, First Base Solutions

## Map 2: Boyd Conservation Area

-  Boyd CA
-  Watercourse
-  ANSI - Boyd Conservation Area
-  PSW - East Humber Wetland Complex



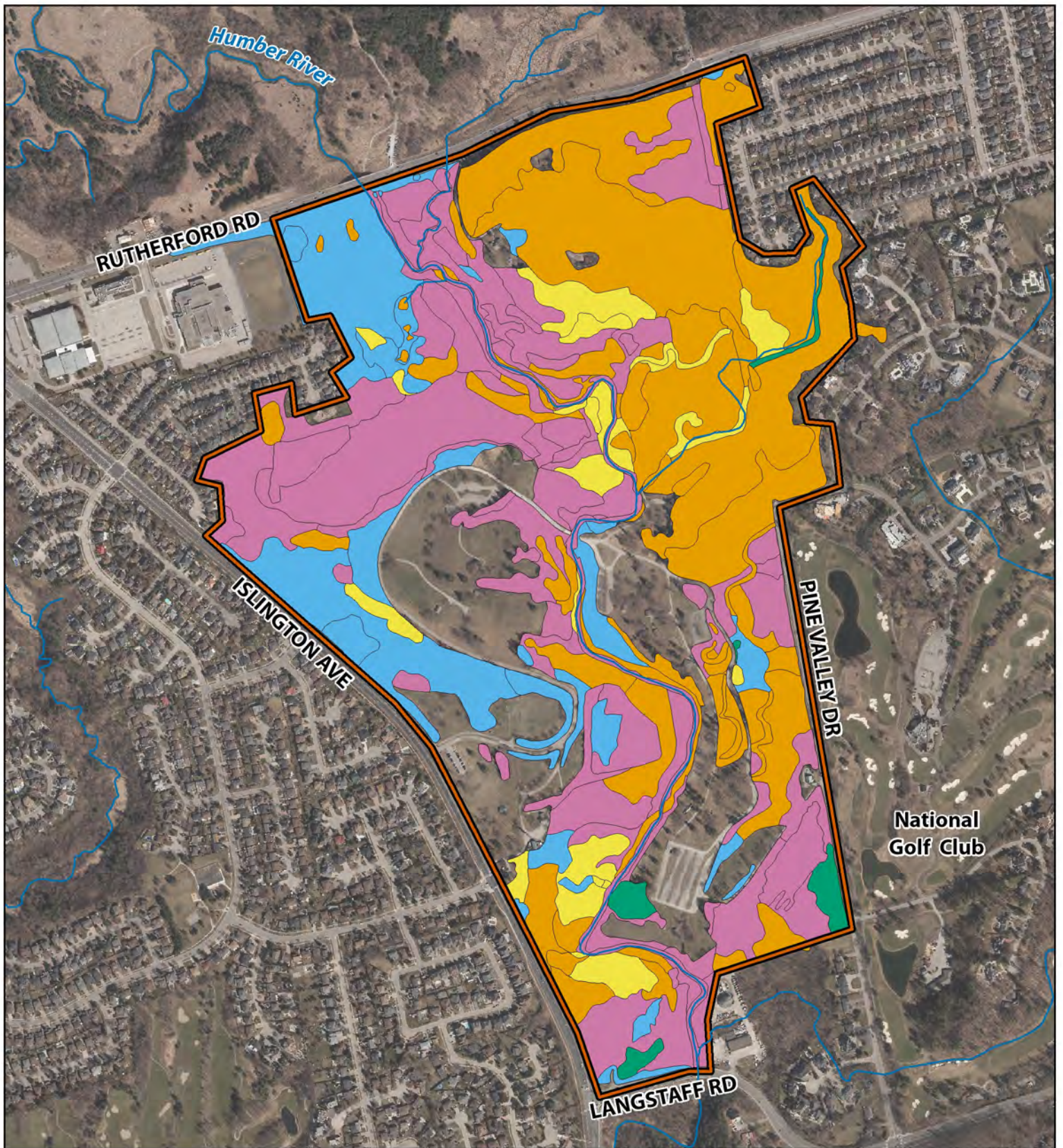
Boyd  
Conservation  
Area





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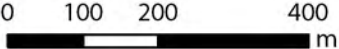
**Map 3:**  
**Distribution of Fauna**  
**Regional Species of Concern**

- Fauna Species of Concern (L1 - L3)
- Boyd CA
- TRCA Jurisdiction
- Watershed
- Agricultural & Rural Area
- Built-up Area
- Designated Greenfield Area
- Greenbelt Area




**Toronto and Region Conservation Authority**












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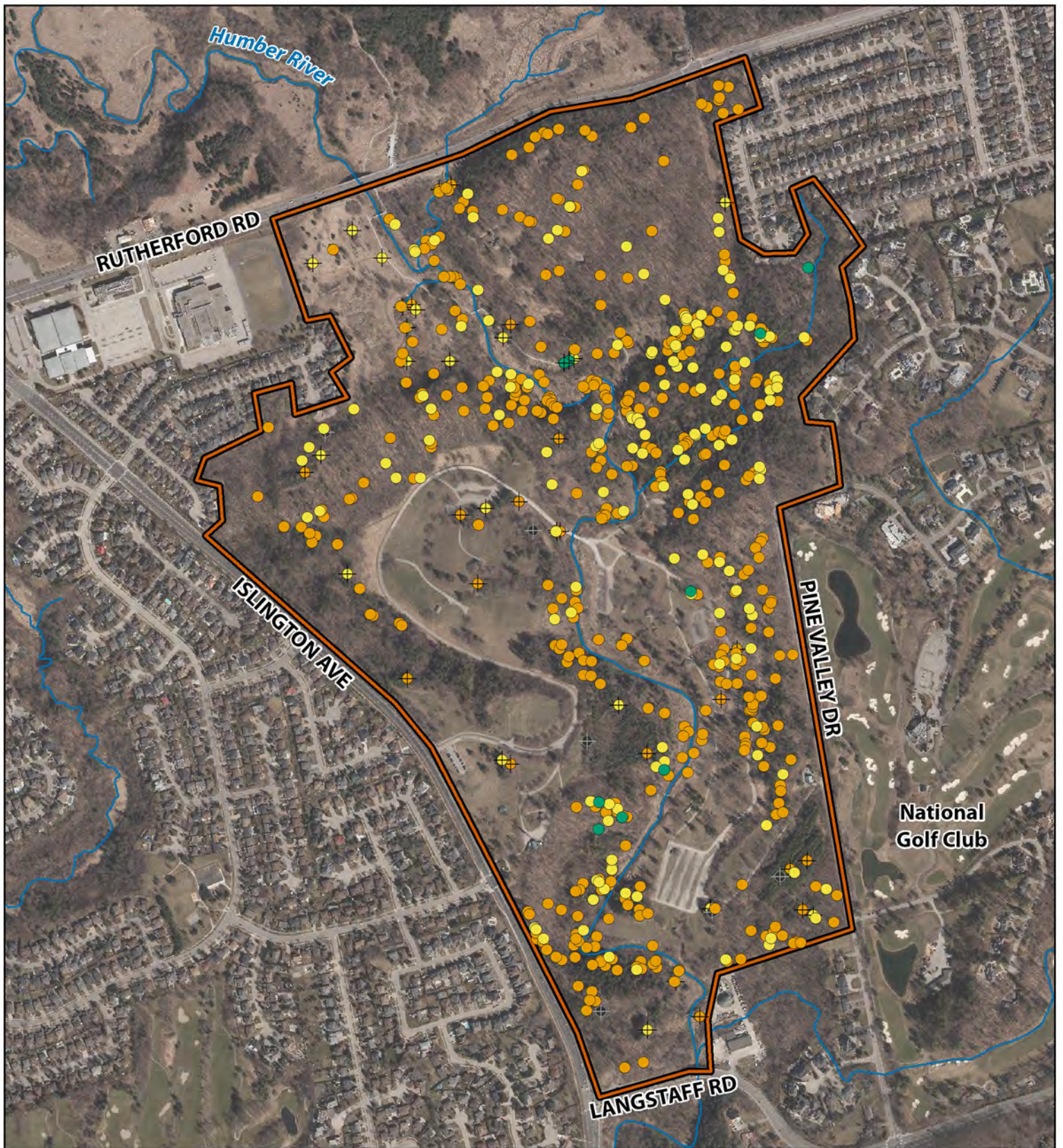
**Map 4:**  
**Vegetation Communities**  
**with their Associated**  
**Local Ranks**


**Vegetation Community Ranks**


	L1		L4
	L2		L5
	L3		L+


 **Boyd CA**

NOTE: All vegetation communities with their associated scores and ranks can be found in Appendix #1.




**Toronto and Region Conservation Authority**




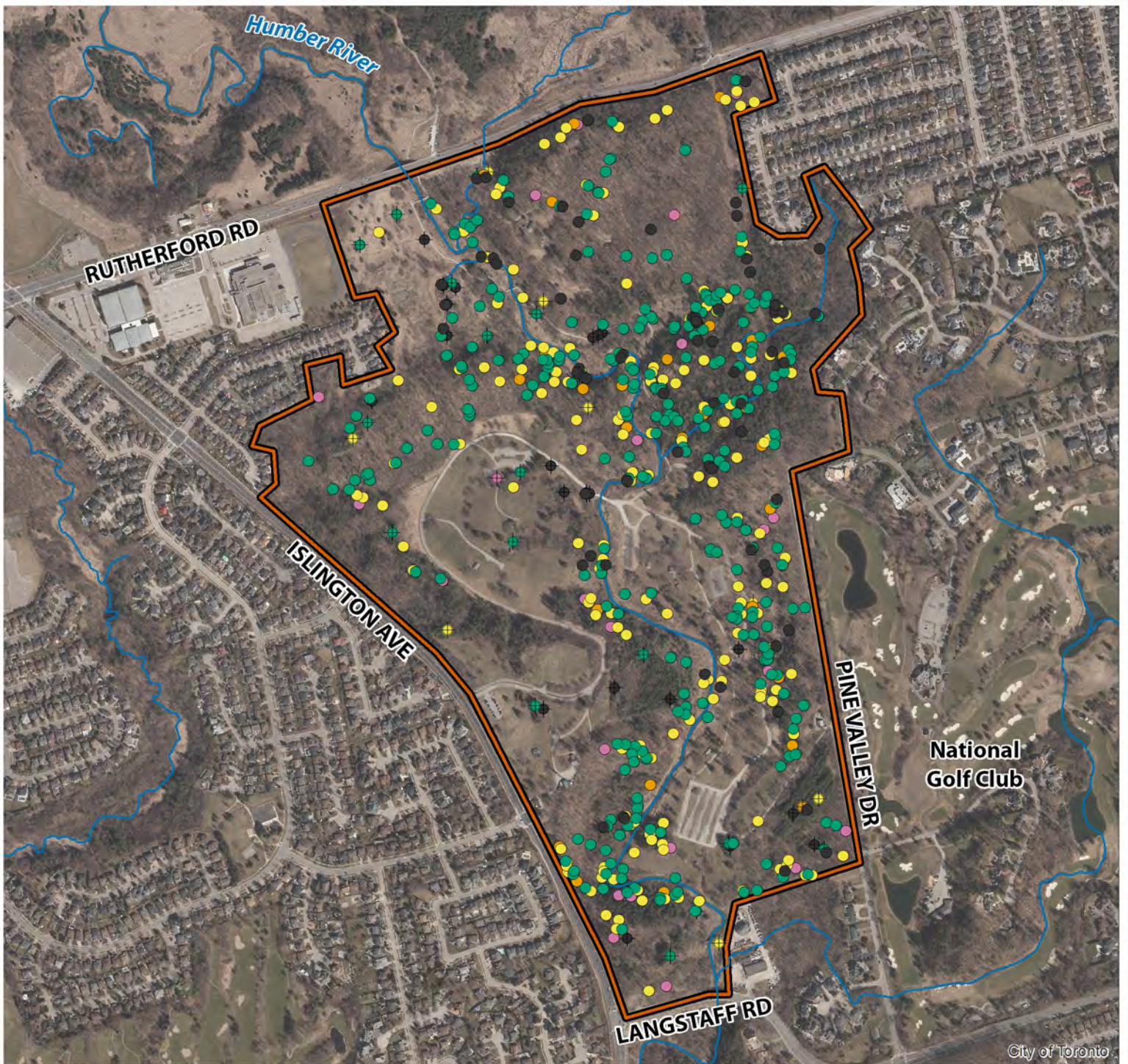
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Orthophoto: Spring 2020  
 \* Landscape analysis based on 2017 Orthophotography

**Map 5:**  
**Location of Flora Species of Concern L1-L4**

Flora Species of Concern (L1-L4)		Planted Flora Species of Concern (L1-L4)	
● L1	● L3	◆ L1	◆ L3
● L2	● L4	◆ L2	◆ L4

 Boyd CA



City of Toronto

**Flora Habitat Dependence Scores**

- 5 - Extreme habitat specialist
- 4 - Strong habitat specialist
- 3 - Moderate habitat specialist
- 2 - Moderate habitat generalist
- 1 - Strong habitat generalist
- 0 - Extreme habitat generalist

- Flora Species
- ⊕ Planted Flora Species
- ▭ Boyd CA

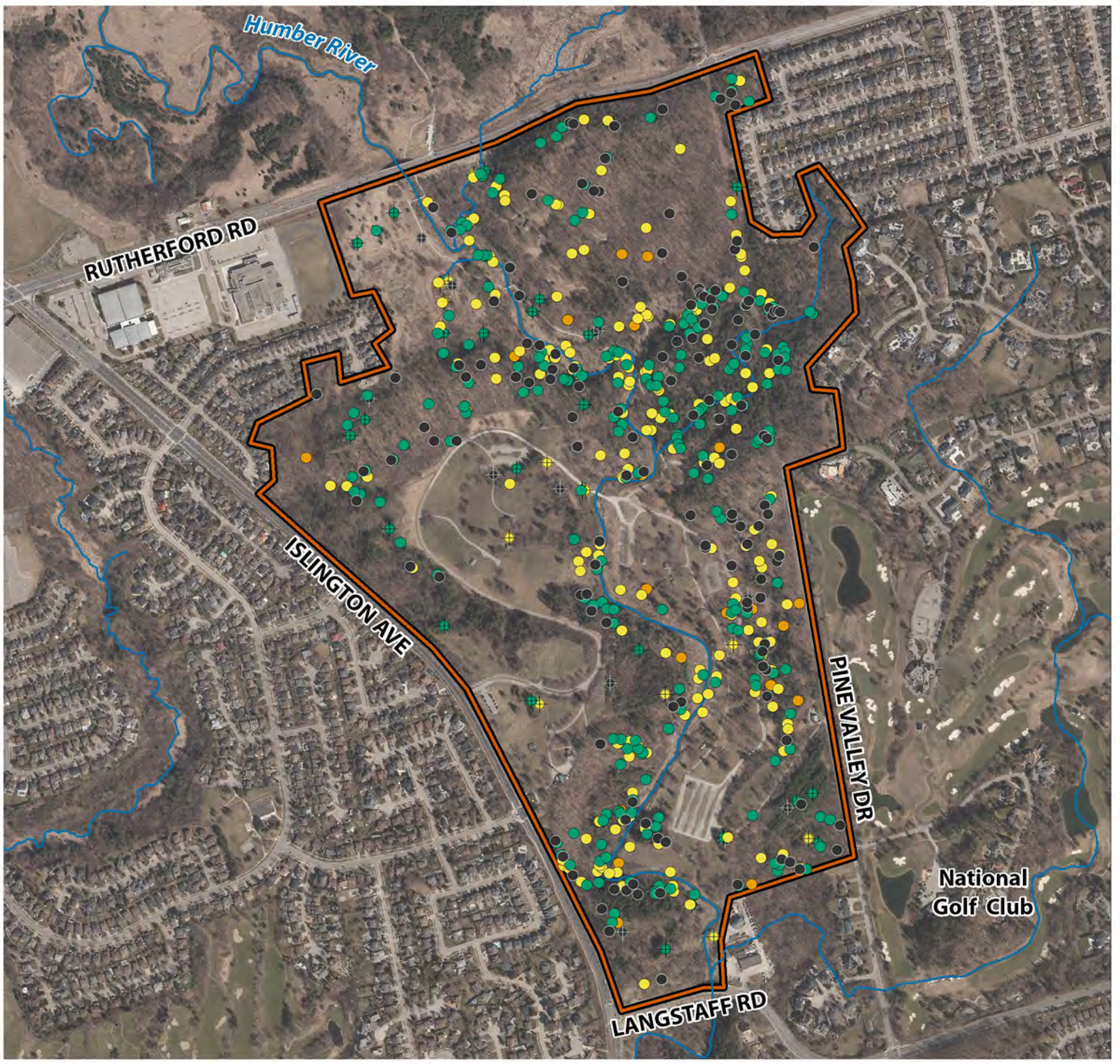
Toronto and Region  
**Conservation Authority**

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Date: January 2022  
Orthophoto: Spring 2020  
\* Landscape analysis based on 2017 Orthophotography

**Map 6:  
Flora Species Habitat  
Dependence Scores**

NOTE: All flora species with their associated scores for habitat dependence can be found in Appendix #2.



**Flora Sensitivity to Development Scores**

- 5 - Species receives severe negative impact from development-related disturbances
- 4 - Species receives moderately severe negative impact from development-related disturbances
- 3 - Species receives significant negative impact from development-related disturbances
- 2 - Species receives slight negative impact from development-related disturbances
- 1 - Species experiences no overall benefit or detriment from development-related disturbances (neutral)
- 0 - Species benefits significantly from development-related disturbances

- Flora Species
- ⊕ Planted Flora Species
- ▭ Boyd CA



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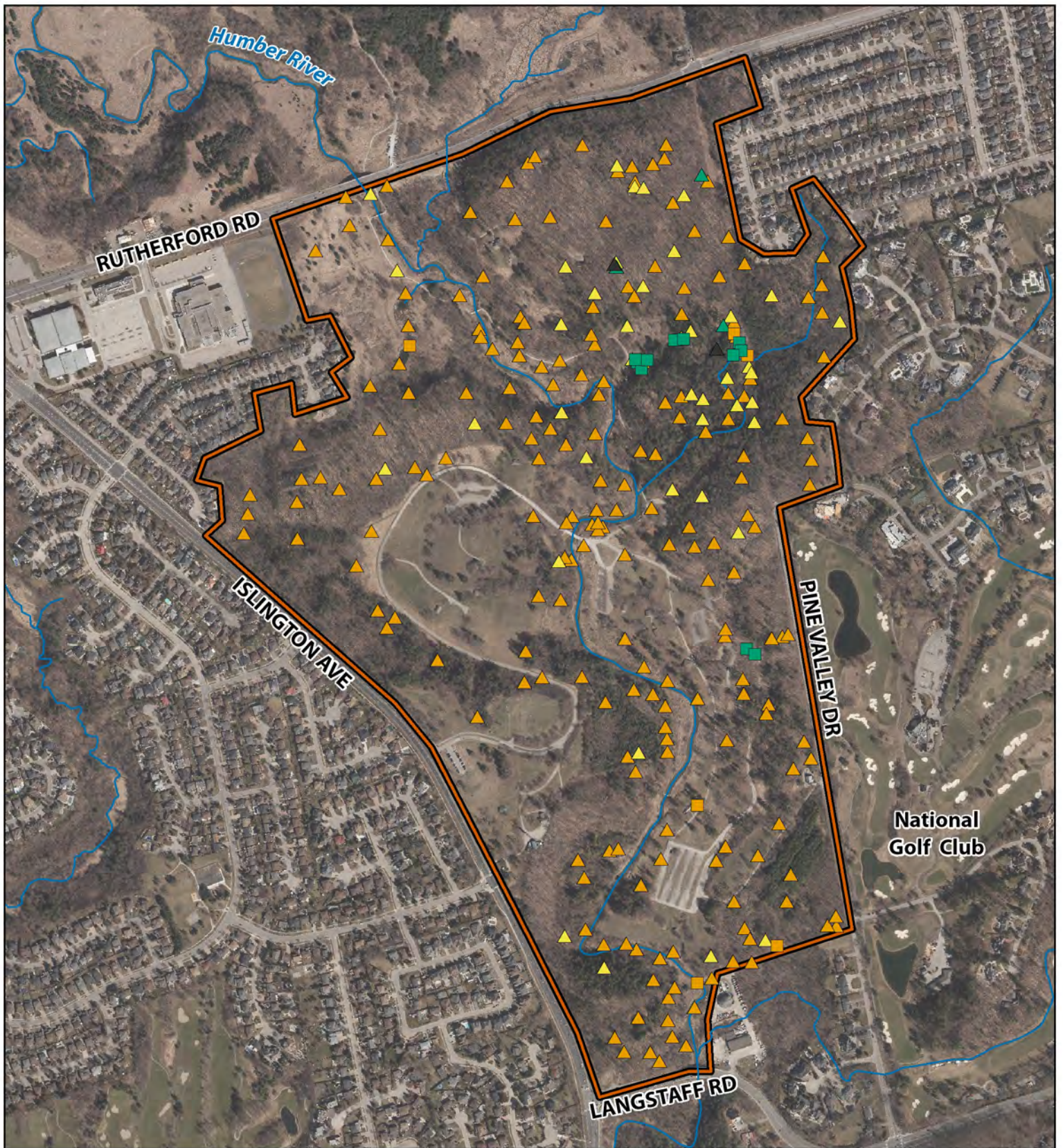
Date: January 2022  
Orthophoto: Spring 2020

\* Landscape analysis based on 2017 Orthophotography

**Map 7:  
Scores for Flora Sensitivity  
to Development**

NOTE: All flora species with their associated scores for sensitivity to development can be found in Appendix #2.





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Orthophoto: Spring 2020  
\* Landscape analysis based on  
2017 Orthophotography

### Map 8: Locations of Fauna Species of Concern

#### Fauna Species of Concern

▲ L1  
▲ L2

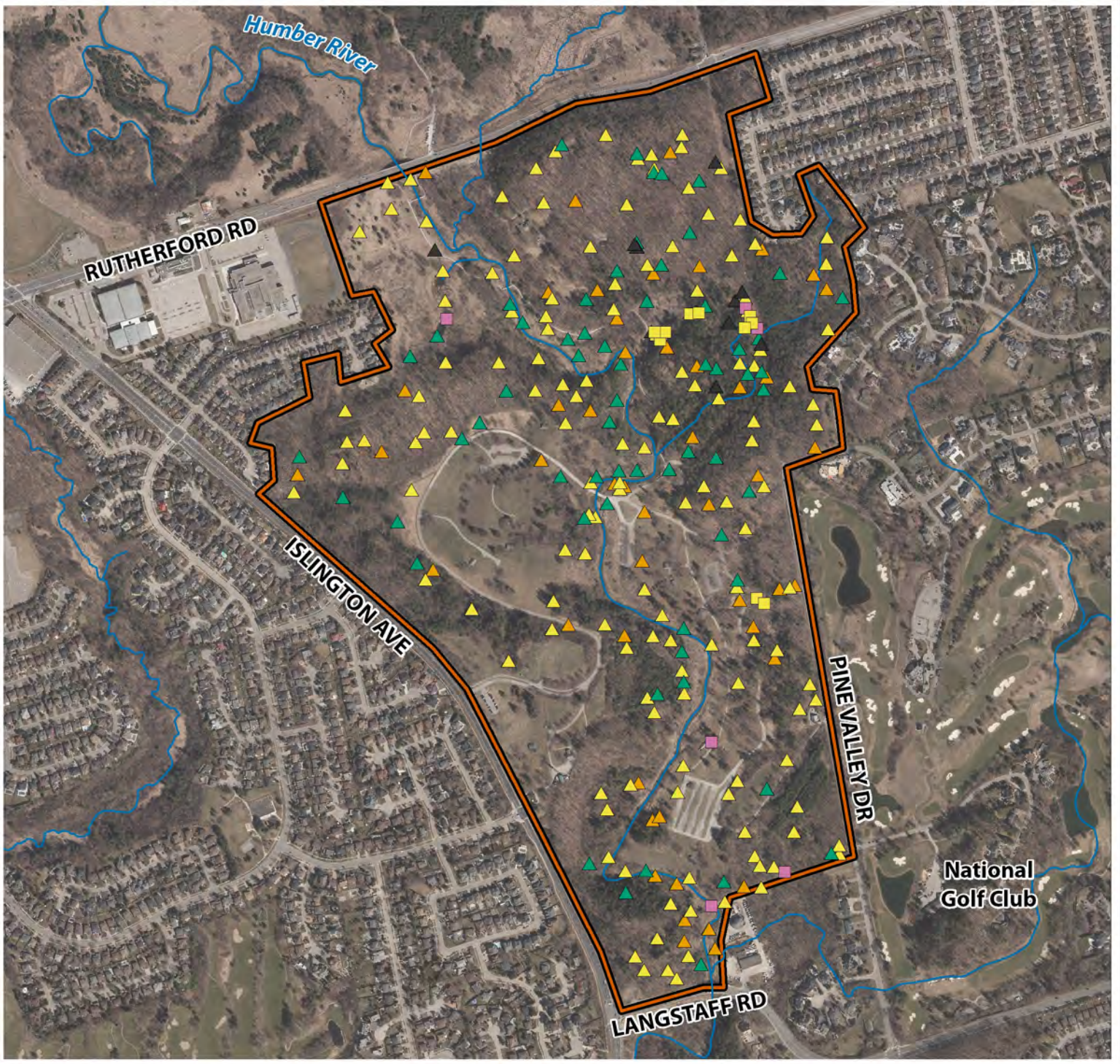
▲ L3  
▲ L4

#### Frog Species of Concern

■ L1  
■ L2


■ L3  
■ L4

Boyd CA




**Fauna Sensitivity to Development Scores**

- ▲ ■ 5 - Species receives severe negative impact from development-related disturbances
  - ▲ ■ 4 - Species receives moderately severe negative impact from development-related disturbances
  - ▲ ■ 3 - Species receives significant negative impact from development-related disturbances
  - ▲ ■ 2 - Species receives slight negative impact from development-related disturbances
  - ▲ ■ 1 - Species experiences no overall benefit or detriment from development-related disturbances (neutral)
  - ▲ ■ 0 - Species benefits significantly from development-related disturbances
- △ Fauna Species
  - Frog Species
  - ▭ Boyd CA



Toronto and Region  
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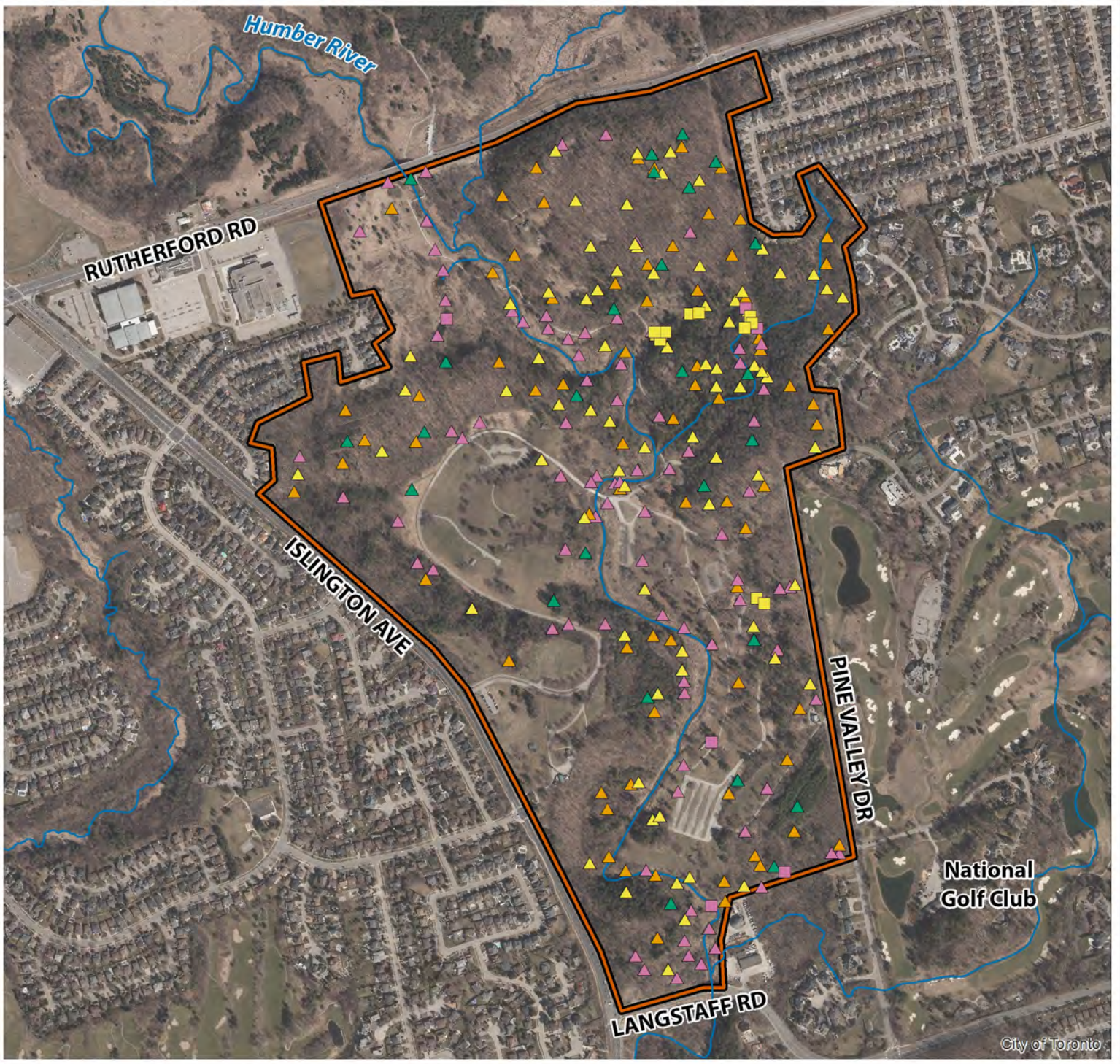


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Date: December 2021  
Orthophoto: Spring 2020  
\* Landscape analysis based on 2017 Orthophotography

**Map 9:  
Scores for Fauna Sensitivity  
to Development**

NOTE: All fauna species with their associated scores for sensitivity to development can be found in Appendix #3.

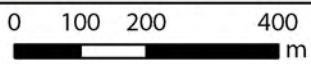


City of Toronto

**Fauna Area Sensitivity Scores**

- ▲ ■ 5 - >100ha
- ▲ ■ 4 - >20ha
- ▲ ■ 3 - >5ha
- ▲ ■ 2 - >1ha
- ▲ ■ 1 - <1ha

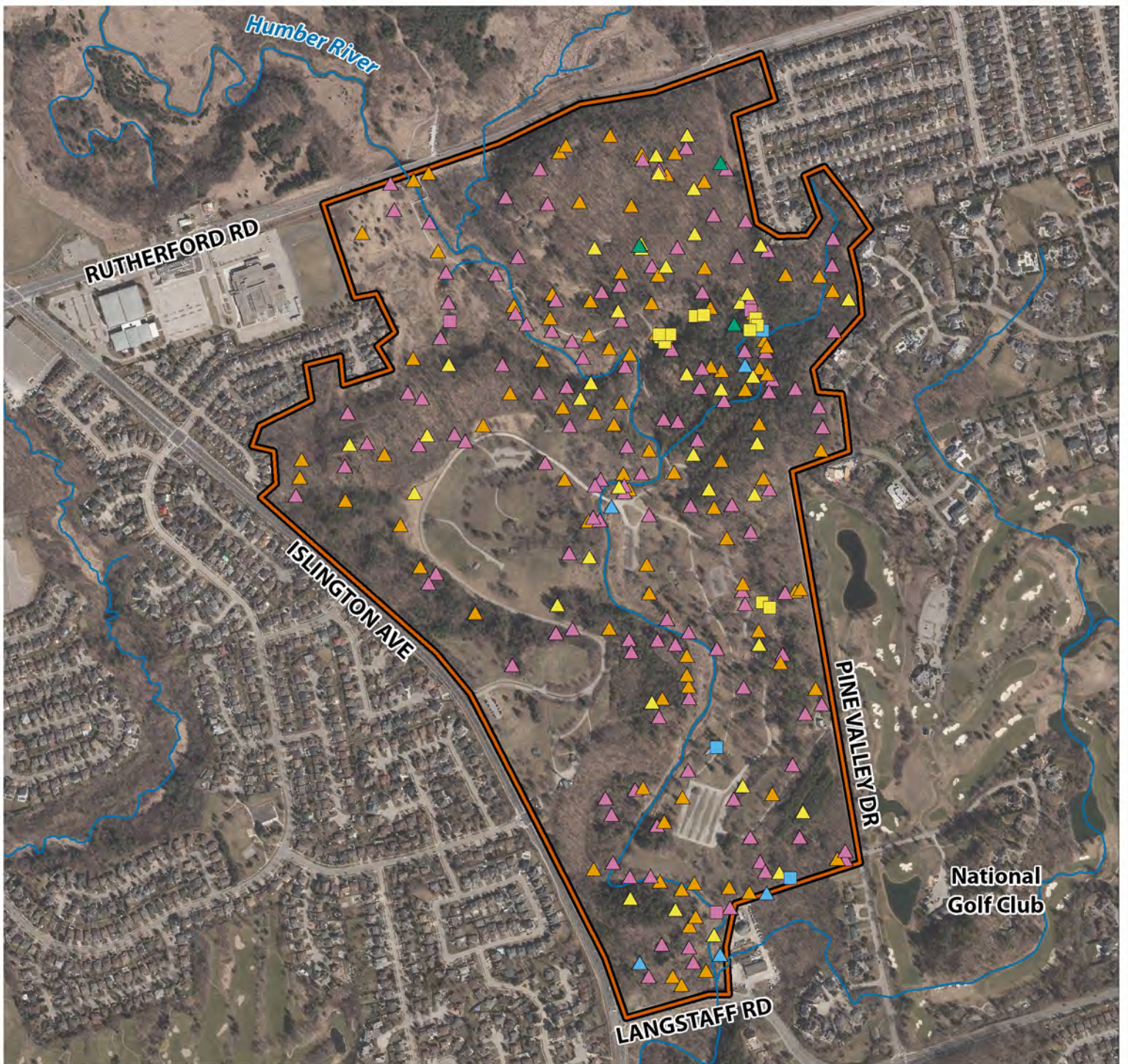
- △ Fauna Species
- Frog Species
- ▭ Boyd CA



**Map 10:  
Fauna Area  
Sensitivity Scores**

NOTE: All fauna species with their associated scores for area sensitivity can be found in Appendix #3.

Date: January 2022  
Orthophoto: Spring 2020  
\* Landscape analysis based on 2017 Orthophotography



**Fauna Habitat Dependence Scores**

- ▲ 5 - Extreme habitat specialist
- 4 - Strong habitat specialist
- ▲ 3 - Moderate habitat specialist
- ▲ 2 - Moderate habitat generalist
- ▲ 1 - Strong habitat generalist
- ▲ 0 - Extreme habitat generalist

- △ Fauna Species
- Frog Species
- ▭ Boyd CA



0 100 200 400  
m

Date: January 2022  
Orthophoto: Spring 2020

\* Landscape analysis based on 2017 Orthophotography

**Map 11:  
Fauna Species Habitat  
Dependence Scores**

NOTE: All fauna species with their associated scores for habitat dependence can be found in Appendix #3.

Appendix 1: Vegetation Communities at Boyd Conservation Area (2021)

ELC Code	Vegetation Type <i>(Indicates present as inclusion and/or complex only)</i>	Area ha 2021	Scores			Local Rank Jun-21
			LO 1-5	GR 0-5	TS 1-10	
	<b>Forest</b>					
FOC1-2	Dry-Fresh White Pine (- Red Pine) Coniferous Forest	0.4	3.5	2.0	5.5	L3
FOC3-1	Fresh-Moist Hemlock Coniferous Forest	1.5	3.0	2.0	5.0	L3
FOC4-1	Fresh-Moist White Cedar Coniferous Forest	0.1	2.5	2.0	4.5	L4
FOM2-1	Dry-Fresh White Pine - Oak Mixed Forest	0.5	3.5	4.0	7.5	L2
FOM2-2	Dry-Fresh White Pine - Sugar Maple Mixed Forest	4.4	3.0	1.0	4.0	L4
FOM2-A	Dry-Fresh White Pine - Hardwood Mixed Forest	0.6	3.5	1.0	4.5	L4
FOM3-2	Dry-Fresh Hemlock - Sugar Maple Mixed Forest	0.2	2.5	2.0	4.5	L4
FOM6-1	Fresh-Moist Sugar Maple - Hemlock Mixed Forest	19.3	1.5	2.0	3.5	L4
FOM6-2	Fresh-Moist Hemlock - Hardwood Mixed Forest	0.5	3.0	3.0	6.0	L3
FOM7-2	Fresh-Moist White Cedar - Hardwood Mixed Forest	0.1	2.0	2.0	4.0	L4
FOM8-1	Fresh-Moist Poplar Mixed Forest	1.4	3.5	2.0	5.5	L3
FOM8-2	Fresh-Moist Paper Birch Mixed Forest	0.1	3.5	2.0	5.5	L3
FOM8-B	Fresh-Moist Hardwood Mixed Forest	1.9	3.5	2.0	5.5	L3
FOMA-A	Fresh-Moist White Pine - Sugar Maple Mixed Forest	0.1	3.5	2.0	5.5	L3
FOD1-1	Dry-Fresh Red Oak Deciduous Forest	1.0	3.5	4.0	7.5	L2
FOD3-1	Dry-Fresh Poplar Deciduous Forest	0.3	3.0	2.0	5.0	L3
FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest	0.4	3.5	0.0	3.5	L+
FOD4-d	Dry-Fresh Norway Maple Deciduous Forest	0.6	3.5	0.0	3.5	L+
FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest	1.7	1.5	0.0	1.5	L5
FOD5-2	Dry-Fresh Sugar Maple - Beech Deciduous Forest	6.1	2.0	0.0	2.0	L5
FOD5-3	Dry-Fresh Sugar Maple - Oak Deciduous Forest	14.0	2.0	2.0	4.0	L4
FOD5-4	Dry-Fresh Sugar Maple - Ironwood Deciduous Forest	1.2	2.5	0.0	2.5	L5
FOD5-7	Dry-Fresh Sugar Maple - Black Cherry Deciduous Forest	0.2	2.5	0.0	2.5	L5
FOD6-2	Fresh-Moist Sugar Maple - Black Maple Deciduous Forest	1.0	2.5	1.0	3.5	L4
FOD6-4	Fresh-Moist Sugar Maple - White Elm Deciduous Forest	0.2	3.0	1.0	4.0	L4
FOD6-5	Fresh-Moist Sugar Maple - Hardwood Deciduous Forest	2.0	2.0	0.0	2.0	L5
FOD7-3	Fresh-Moist Willow Lowland Deciduous Forest	0.3	2.0	0.0	2.0	L5

Appendix 1: Vegetation Communities at Boyd Conservation Area (2021)

ELC Code	Vegetation Type <i>(Indicates present as inclusion and/or complex only)</i>	Area ha 2021	Scores			Local Rank Jun-21
			LO 1-5	GR 0-5	TS 1-10	
FOD7-5	Fresh-Moist Black Maple Lowland Deciduous Forest	0.4	3.5	1.0	4.5	L4
FOD7-a	Fresh-Moist Manitoba Maple Lowland Deciduous Forest	1.2	2.0	0.0	2.0	L5
FOD7-F	Fresh-Moist Basswood Lowland Deciduous Forest	0.4	3.0	1.0	4.0	L4
CUP1-3	Black Walnut Deciduous Plantation	4.1	3.0	0.0	3.0	L5
CUP1-A	Restoration Deciduous Plantation	0.1	2.0	0.0	2.0	L5
CUP1-c	Locust Deciduous Plantation	1.2	2.0	0.0	2.0	L+
CUP1-d	Horticultural Deciduous Plantation	1.1	2.5	0.0	2.5	L+
CUP2-A	Restoration Mixed Plantation	0.3	2.0	0.0	2.0	L5
CUP2-c	Norway Maple - Conifer Mixed Plantation	5.2	3.0	0.0	3.0	L+
CUP2-E	Silver Maple - Conifer Mixed Plantation	0.1	3.0	0.0	3.0	L5
CUP2-I	Red Oak - Conifer Mixed Plantation	1.1	3.5	0.0	3.5	L5
CUP3-1	Red Pine Coniferous Plantation	(i)	2.0	0.0	2.0	L5
CUP3-2	White Pine Coniferous Plantation	1.8	2.0	0.0	2.0	L5
CUP3-b	Austrian Pine Coniferous Plantation	0.1	3.0	0.0	3.0	L+
CUP3-C	White Spruce Coniferous Plantation	1.4	2.0	0.0	2.0	L5
CUP3-e	Norway Spruce Coniferous Plantation	0.3	2.5	0.0	2.5	L+
CUP3-G	White Cedar Coniferous Plantation	0.1	2.5	0.0	2.5	L5
CUP3-H	Mixed Conifer Coniferous Plantation	0.3	1.5	0.0	1.5	L5
CUP3-i	Douglas Fir Coniferous Plantation	0.1	5.0	0.0	5.0	L+
	<b>Successional</b>					
CUT1-1	Sumac Deciduous Thicket	0.2	2.0	0.0	2.0	L5
CUT1-A1	Native Deciduous Sapling Regeneration Thicket	0.3	2.0	0.0	2.0	L5
CUT1-A2	Native Mixed Sapling Regeneration Thicket	0.4	3.0	0.0	3.0	L4
CUT1-b	Buckthorn Deciduous Thicket	0.1	2.0	0.0	2.0	L+
CUT1-c	Exotic Deciduous Thicket	0.3	2.0	0.0	2.0	L+
CUS1-A1	Native Deciduous Successional Savannah	6.3	2.0	0.0	2.0	L5
CUS1-b	Exotic Successional Savannah	6.5	2.0	0.0	2.0	L+
CUW1-A1	White Cedar Successional Woodland	0.03	2.5	1.0	3.5	L4

Appendix 1: Vegetation Communities at Boyd Conservation Area (2021)

ELC Code	Vegetation Type <i>(Indicates present as inclusion and/or complex only)</i>	Area ha 2021	Scores			Local Rank Jun-21
			LO 1-5	GR 0-5	TS 1-10	
CUW1-A2	White Pine Successional Woodland	1.2	3.5	1.0	4.5	L4
CUW1-A3	Native Deciduous Successional Woodland	11.6	1.5	0.0	1.5	L5
CUW1-D	Hawthorn Successional Woodland	0.1	2.5	0.0	2.5	L5
	<b>Wetland</b>					
SWC1-1	White Cedar Mineral Coniferous Swamp	0.1	3.0	2.0	5.0	L3
SWC1-2	White Cedar - Conifer Mineral Coniferous Swamp	0.5	3.5	2.0	5.5	L3
SWMA-A	Red Ash - Hemlock Mineral Mixed Swamp	0.3	4.5	2.0	6.5	L2
SWD1-2	Bur Oak Mineral Deciduous Swamp	0.03	4.5	2.0	6.5	L2
SWD3-4	Manitoba Maple Mineral Deciduous Swamp	0.4	4.0	0.0	4.0	L4
SWD4-1	Willow Mineral Deciduous Swamp	0.3	2.0	1.0	3.0	L4
SWT2-2	Willow Mineral Thicket Swamp	0.1	2.0	2.0	4.0	L4
MAM2-7	Horsetail Mineral Meadow Marsh	0.02	3.5	2.0	5.5	L3
MAM2-9	Jewelweed Mineral Meadow Marsh	0.4	3.5	1.0	4.5	L4
MAM2-10	Forb Mineral Meadow Marsh	0.3	2.0	1.0	3.0	L4
MAM2-a	Common Reed Mineral Meadow Marsh	0.1	2.5	0.0	2.5	L+
MAS2-1b	Narrow-Leaved Cattail Mineral Shallow Marsh	0.9	2.0	0.0	2.0	L+
MAS2-7	Bur-reed Mineral Shallow Marsh	0.03	3.5	2.0	5.5	L3
MAS2-8	Rice Cut-grass Mineral Shallow Marsh	0.3	4.0	1.0	5.0	L3
MAS2-9	Forb Mineral Shallow Marsh	0.2	3.0	1.0	4.0	L4
	<b>Aquatic</b>					
SAM1-A	Water Lily - Bullhead Lily Mixed Shallow Aquatic	0.1	2.5	2.0	4.5	L4
SAF1-3	Duckweed Floating-leaved Shallow Aquatic	0.03	2.5	1.0	3.5	L4
OA01	Open Aquatic (deep or riverine unvegetated)	2.6	2.0	0.0	2.0	L5
	<b>Dynamic (Beach, Bluff, Barren, Prairie, Savannah)</b>					
BBO1-3	Reed Canary Grass Riparian Bar	0.1	4.0	2.0	6.0	L3
BBO1-A	Open Riparian Sand / Gravel Bar	0.02	3.5	2.0	5.5	L5
BBS1-2B	Willow Shrub Riparian Bar	1.0	3.0	1.0	4.0	L4
BBT1-B	Mineral Treed Riparian Bar	0.5	3.5	2.0	5.5	L3

Appendix 1: Vegetation Communities at Boyd Conservation Area (2021)

ELC Code	Vegetation Type <i>(Indicates present as inclusion and/or complex only)</i>	Area ha 2021	Scores			Local Rank Jun-21
			LO 1-5	GR 0-5	TS 1-10	
BLO1	Mineral Open Bluff	0.2	3.0	2.0	5.0	<b>L3</b>
BLS1-c	Exotic Shrub Bluff	0.1	4.5	2.0	6.5	<b>L+</b>
BLT1-B	Deciduous Treed Bluff	0.1	3.0	2.0	5.0	<b>L3</b>
SBO1-B	Dry-Fresh Flat-stemmed Bluegrass - Forb Sand Barren	<i>(c)</i>	4.0	3.0	7.0	<b>L2</b>
SBO1-D	Forb Sand Barren	<i>(c)</i>	4.0	3.0	7.0	<b>L2</b>
TPO2-A	Fresh-Moist Tallgrass Prairie Planting	0.2	2.5	1.0	3.5	<b>L5</b>
	<b>Meadow</b>					
CUM1-A	Native Forb Meadow	0.7	1.0	0.0	1.0	<b>L5</b>
CUM1-b	Exotic Cool-season Grass Graminoid Meadow	1.9	1.0	0.0	1.0	<b>L+</b>

**LEGEND**

**L-rank: TRCA local rank (assigned June 2021)**

- L1-L3: community of regional conservation concern
- L4: community of conservation concern in urban area
- L5: community not of concern at this time
- L+: community of predominantly introduced species
- (c), (i)*: only present as complex *(c)* or inclusion *(i)*

**Scoring criteria (components of L-rank)**

- LO: Local Occurrence
- GR: Geophysical Requirements
- TS: Total Score



## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Acoraceae	<i>Acorus americanus</i>	sweet flag	3	3	4	4	14	L3	pr						
Adoxaceae	<i>Sambucus canadensis</i>	common elderberry	1	3	2	2	8	L5	n	n					n
Adoxaceae	<i>Sambucus racemosa</i>	red-berried elder	1	3	2	2	8	L5	n	n	n	n	n		n
Adoxaceae	<i>Viburnum acerifolium</i>	maple-leaved viburnum	2	3	4	5	14	L3			n	n	n		n
Adoxaceae	<i>Viburnum lentago</i>	nannyberry	1	3	1	2	7	L5	n	n			n		n
Adoxaceae	<i>Viburnum opulus</i> var. <i>americanum</i>	American highbush cranberry	3	5	4	4	16	L3							ncf
Adoxaceae	<i>Viburnum opulus</i> var. <i>opulus</i>	European highbush cranberry	1	ns	ns	ns	1	L+	n	n	n	n			n
Alismataceae	<i>Alisma triviale</i>	common water-plantain	1	2	4	2	9	L5	n	n	n	n			
Alismataceae	<i>Sagittaria latifolia</i>	common arrowhead	1	2	4	4	11	L4	n	n	n	n			
Amaranthaceae	<i>Atriplex heterosperma</i>	Russian orache	4	ns	ns	ns	4	L+	n						
Amaranthaceae	<i>Atriplex patula</i>	halberd-leaved orache	2	ns	ns	ns	2	L+?	n						
Amaranthaceae	<i>Atriplex prostrata</i>	spreading orache	2	ns	ns	ns	2	L+?		n					
Amaranthaceae	<i>Chenopodium album</i>	lamb's quarters	1	ns	ns	ns	1	L+		n					
Amaranthaceae	<i>Kali tragus</i>	Russian thistle	4	ns	ns	ns	4	L+		ncf					
Amaryllidaceae	<i>Allium tricoccum</i> var. <i>tricoccum</i>	wild leek	1	3	4	4	12	L4	n	n	n	n	n	n	n
Amaryllidaceae	<i>Narcissus pseudonarcissus</i>	daffodil	2	ns	ns	ns	2	L+		n					
Anacardiaceae	<i>Rhus typhina</i>	staghorn sumach	1	1	2	2	6	L5	n	n		n	n		n
Anacardiaceae	<i>Toxicodendron radicans</i> var. <i>radicans</i>	climbing poison ivy	2	2	3	2	9	L5	n						n
Anacardiaceae	<i>Toxicodendron radicans</i> var. <i>rydbergii</i>	shrubby poison ivy	1	2	0	2	5	L5	n	n	n	n	n	n	
Apiaceae	<i>Aegopodium podagraria</i>	goutweed	1	ns	ns	ns	1	L+	n						
Apiaceae	<i>Cicuta bulbifera</i>	bulblet-bearing water-hemlock	1	2	3	3	9	L5	n	n	n	n			
Apiaceae	<i>Cicuta maculata</i>	spotted water-hemlock	1	2	2	2	7	L5	n	n		n			
Apiaceae	<i>Cryptotaenia canadensis</i>	honewort	1	2	4	1	8	L5	n	n	n	n			
Apiaceae	<i>Daucus carota</i>	Queen Anne's lace	1	ns	ns	ns	1	L+	n		n	n	n		n
Apiaceae	<i>Heraclium mantegazzianum</i>	giant hog-weed	3	ns	ns	ns	3	L+		n					
Apiaceae	<i>Levisticum officinale</i>	lovage	5	ns	ns	ns	5	L+	n						
Apiaceae	<i>Osmorhiza claytonii</i>	woolly sweet cicely	2	3	4	3	12	L4		n					
Apiaceae	<i>Pastinaca sativa</i>	wild parsnip	1	ns	ns	ns	1	L+	n	n					
Apiaceae	<i>Sanicula marilandica</i>	sanicle	2	3	3	3	11	L4	n						
Apiaceae	<i>Sium suave</i>	water-parsnip	2	2	2	4	10	L5	n	n	n	n	n		n
Apiaceae	<i>Torilis japonica</i>	hedge-parsley	1	ns	ns	ns	1	L+	n	n					
Apocynaceae	<i>Apocynum androsaemifolium</i>	spreading dogbane	1	3	2	4	10	L5	n	n		n	n		n
Apocynaceae	<i>Apocynum cannabinum</i>	hemp dogbane (sensu lato)	1	2	3	2	8	L5		n		n			
Apocynaceae	<i>Apocynum cannabinum</i> var. <i>cannabinum</i>	hemp dogbane	2	2	3	2	9	L5	n						
Apocynaceae	<i>Asclepias incarnata</i> ssp. <i>incarnata</i>	swamp milkweed	1	3	4	4	12	L4	n	n	n				
Apocynaceae	<i>Asclepias syriaca</i>	common milkweed	1	2	0	2	5	L5	n	n		n	n		n
Apocynaceae	<i>Vinca minor</i>	periwinkle	1	ns	ns	ns	1	L+	pr						
Apocynaceae	<i>Vincetoxicum rossicum</i>	dog-strangling vine	1	ns	ns	ns	1	L+	n	n		n			
Araceae	<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	1	3	2	3	9	L5	n	n	n	n	n	n	n
Araceae	<i>Lemna minor</i>	common duckweed	1	2	4	2	9	L5		n	n	n			
Araceae	<i>Lemna trisulca</i>	star duckweed	2	4	5	3	14	L3	n						
Araceae	<i>Lemna turionifera</i>	turion duckweed	1	2	3	3	9	L5	n						
Araceae	<i>Spirodela polyrhiza</i>	greater duckweed	1	4	5	3	13	L4	n						
Araceae	<i>Symplocarpus foetidus</i>	skunk cabbage	3	2	3	3	11	L4	n	n	n	n	n		n
Araliaceae	<i>Aralia nudicaulis</i>	wild sarsaparilla	1	3	1	4	9	L5	n	n	n	n	n		n
Araliaceae	<i>Aralia racemosa</i>	spikenard	2	4	4	4	14	L3	n	n	n	n			
Araliaceae	<i>Hydrocotyle americana</i>	marsh pennywort	2	3	4	4	13	L4	n	n	n	n			
Aristolochiaceae	<i>Asarum canadense</i>	wild ginger	1	3	4	3	11	L4	n	n	n	n	n	n	n
Asparagaceae	<i>Asparagus officinalis</i>	asparagus	1	ns	ns	ns	1	L+	n						n
Asparagaceae	<i>Convallaria majalis</i>	lily-of-the-valley	1	ns	ns	ns	1	L+	n	n		n			ph
Asparagaceae	<i>Maianthemum canadense</i>	Canada May-flower	1	4	1	5	11	L4	n	n	n	n		n	n
Asparagaceae	<i>Maianthemum racemosum</i>	false Solomon's seal	1	3	2	3	9	L5	n	n	n	n	n		n
Asparagaceae	<i>Maianthemum stellatum</i>	starry false Solomon's seal	1	2	1	3	7	L5	n	n		n			
Asparagaceae	<i>Polygonatum pubescens</i>	downy Solomon's seal	1	4	2	5	12	L4	n	n	n	n			n
Asteraceae	<i>Achillea borealis</i> var. <i>borealis</i>	woolly yarrow	1	2	0	1	4	L5	n	n			n		ncf
Asteraceae	<i>Ageratina altissima</i> var. <i>altissima</i>	white snakeroot	1	2	2	1	6	L5	n	n	n	n			n
Asteraceae	<i>Ambrosia artemisiifolia</i>	common ragweed	1	1	3	0	5	L5		n	n				
Asteraceae	<i>Antennaria howellii</i> ssp. <i>howellii</i>	Howell's pussytoes	2	2	2	3	9	L5		n			n		
Asteraceae	<i>Antennaria parlinii</i> ssp. <i>fallax</i>	plantain-leaved pussytoes	3	4	3	4	14	L3							n
Asteraceae	<i>Arctium minus</i>	common burdock	1	ns	ns	ns	1	L+	n	n	n	n	n		n

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Asteraceae	<i>Bidens cernua</i>	nodding bur-marigold	1	2	2	3	8	L5	n	n	n				
Asteraceae	<i>Bidens frondosa</i>	common beggar's-ticks	1	1	2	0	4	L5	2019 (ltmp)	n	n				
Asteraceae	<i>Bidens tripartita</i>	three-parted beggar's-ticks	1	2	3	2	8	L5	n			n			
Asteraceae	<i>Bidens vulgata</i>	tall beggar's-ticks	2	2	2	2	8	L5	n						
Asteraceae	<i>Centaurea x moncktonii</i>	meadow knapweed	5	ns	ns	ns	5	L+	n						
Asteraceae	<i>Cichorium intybus</i>	chicory	1	ns	ns	ns	1	L+	n	n	n		n		n
Asteraceae	<i>Cirsium arvense</i>	creeping thistle	1	ns	ns	ns	1	L+	n	n	n	n	n	n	n
Asteraceae	<i>Cirsium discolor</i>	pasture thistle	5	5	4	4	18	L2							ncf
Asteraceae	<i>Cirsium vulgare</i>	bull thistle	1	ns	ns	ns	1	L+	n		n	n			
Asteraceae	<i>Erechtites hieraciifolius</i> var. <i>hieraciifolius</i>	burnweed	4	5	3	4	16	L3			n				
Asteraceae	<i>Erigeron annuus</i>	daisy fleabane	1	2	0	1	4	L5	n	n		n	n		n
Asteraceae	<i>Erigeron canadensis</i>	horse-weed	1	1	2	0	4	L5	n	n					
Asteraceae	<i>Erigeron philadelphicus</i> var. <i>philadelphicus</i>	Philadelphia fleabane	1	2	0	1	4	L5	n	n	n	n	n	n	n
Asteraceae	<i>Erigeron strigosus</i>	rough fleabane	2	2	1	1	6	L5	n	n					
Asteraceae	<i>Eupatorium perfoliatum</i>	boneset	1	2	2	3	8	L5	n			n			
Asteraceae	<i>Eurybia macrophylla</i>	big-leaved aster	1	3	1	4	9	L5	n	n	n	n			
Asteraceae	<i>Euthamia graminifolia</i>	grass-leaved goldenrod	1	1	4	1	7	L5	n	n			n		
Asteraceae	<i>Eutrochium maculatum</i> var. <i>maculatum</i>	spotted Joe-Pye weed	1	2	0	3	6	L5	n		n	n	n		n
Asteraceae	<i>Helianthus tuberosus</i>	Jerusalem artichoke	1	1	2	0	4	L5	n						
Asteraceae	<i>Hieracium lachenalii</i>	blotched hawkweed	3	ns	ns	ns	3	L+	n	n					
Asteraceae	<i>Inula britannica</i>	British elecampane	5	ns	ns	ns	5	L+							n
Asteraceae	<i>Inula helenium</i>	elecampane	1	ns	ns	ns	1	L+		n	n	n	n	n	n
Asteraceae	<i>Lactuca biennis</i>	tall blue lettuce	2	4	2	4	12	L4	n						
Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	1	ns	ns	ns	1	L+	2019 (ltmp)						
Asteraceae	<i>Leucanthemum vulgare</i>	ox-eye daisy	1	ns	ns	ns	1	L+	n	n	n				n
Asteraceae	<i>Matricaria discoidea</i>	pineappleweed	1	ns	ns	ns	1	L+			n				
Asteraceae	<i>Nabalus albus</i>	white wood lettuce	3	4	4	3	14	L3							n
Asteraceae	<i>Nabalus altissimus</i>	tall wood lettuce	1	3	2	2	8	L5			n	n			
Asteraceae	<i>Pilosella caespitosa</i>	yellow hawkweed	1	ns	ns	ns	1	L+		n	n	n			n
Asteraceae	<i>Pilosella officinarum</i>	mouse-ear hawkweed	3	ns	ns	ns	3	L+	n						
Asteraceae	<i>Pilosella x floribunda</i>	smoothish hawkweed	2	ns	ns	ns	2	L+	n						
Asteraceae	<i>Rudbeckia hirta</i>	black-eyed Susan	1	4	4	3	12	L4	prn	n			n		
Asteraceae	<i>Solidago altissima</i>	tall goldenrod	1	2	0	0	3	L5	n	n	n	n	n		n
Asteraceae	<i>Solidago caesia</i>	blue-stemmed goldenrod	1	2	4	2	9	L5	n	n	n	n	n		n
Asteraceae	<i>Solidago canadensis</i> var. <i>canadensis</i>	Canada goldenrod	1	2	0	1	4	L5	n	n					
Asteraceae	<i>Solidago flexicaulis</i>	zig-zag goldenrod	1	1	3	2	7	L5	n	n	n	n	n		n
Asteraceae	<i>Solidago gigantea</i>	late goldenrod	1	1	1	1	4	L5	n	n	n	n			
Asteraceae	<i>Solidago nemoralis</i> ssp. <i>nemoralis</i>	grey goldenrod	1	2	2	2	7	L5	n	n					
Asteraceae	<i>Sonchus arvensis</i> ssp. <i>arvensis</i>	glandular perennial sow-thistle	1	ns	ns	ns	1	L+	n	n					n
Asteraceae	<i>Sonchus oleraceus</i>	annual sow-thistle	1	ns	ns	ns	1	L+	n						
Asteraceae	<i>Symphyotrichum cordifolium</i>	heart-leaved aster	1	1	0	2	4	L5	n	n	n	n	n		n
Asteraceae	<i>Symphyotrichum ericoides</i> var. <i>ericoides</i>	heath aster	1	1	2	1	5	L5	n	n					
Asteraceae	<i>Symphyotrichum lanceolatum</i> var. <i>hirsuticaule</i>	Great Lakes panicled aster	4	3	4	3	14	L3	n						
Asteraceae	<i>Symphyotrichum lanceolatum</i> var. <i>lanceolatum</i>	panicled aster	1	2	2	1	6	L5	n	n	n				
Asteraceae	<i>Symphyotrichum lateriflorum</i> var. <i>lateriflorum</i>	calico aster	1	2	3	2	8	L5	n		n	n	n		
Asteraceae	<i>Symphyotrichum novae-angliae</i>	New England aster	1	2	2	1	6	L5	n	n	n				
Asteraceae	<i>Symphyotrichum puniceum</i> var. <i>puniceum</i>	swamp aster	1	2	1	2	6	L5	n	n	n	n			
Asteraceae	<i>Taraxacum officinale</i>	dandelion	1	ns	ns	ns	1	L+	n	n	n	n	n	n	n
Asteraceae	<i>Tragopogon dubius</i>	lemon-yellow goat's beard	1	ns	ns	ns	1	L+	n	n					n
Asteraceae	<i>Tragopogon pratensis</i>	meadow goat's beard	1	ns	ns	ns	1	L+	n						
Asteraceae	<i>Tussilago farfara</i>	coltsfoot	1	ns	ns	ns	1	L+	n	n	n	n	n	n	n
Asteraceae	<i>Xanthium strumarium</i>	clotbur	2	1	4	0	7	L5	n	n			n		n
Balsaminaceae	<i>Impatiens capensis</i>	orange touch-me-not	1	2	0	2	5	L5	n	n	n	n	n	n	n
Balsaminaceae	<i>Impatiens pallida</i>	yellow touch-me-not	2	3	4	2	11	L4	n						n
Berberidaceae	<i>Berberis thunbergii</i>	Japanese barberry	1	ns	ns	ns	1	L+	n	n					
Berberidaceae	<i>Caulophyllum giganteum</i>	long-styled blue cohosh	1	3	4	4	12	L4	n	n	n	n	n	n	
Berberidaceae	<i>Caulophyllum thalictroides</i>	blue cohosh	3	3	4	5	15	L3	n	n	n	n	n	n	n
Berberidaceae	<i>Podophyllum peltatum</i>	May-apple	1	3	3	2	9	L5	n	n	n	n	n	n	n
Betulaceae	<i>Alnus glutinosa</i>	European alder	1	ns	ns	ns	1	L+							n

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Betulaceae	<i>Alnus incana</i> ssp. <i>rugosa</i>	speckled alder	2	4	4	5	15	L3	n	n	n	n	n		
Betulaceae	<i>Betula alleghaniensis</i>	yellow birch	1	4	3	5	13	L4	pn	n	n	n		n	n
Betulaceae	<i>Betula papyrifera</i>	paper birch	1	4	2	4	11	L4	pn	n	n	n	n		n
Betulaceae	<i>Betula pendula</i>	European white birch	2	ns	ns	ns	2	L+	n	n					
Betulaceae	<i>Carpinus caroliniana</i> ssp. <i>virginiana</i>	blue beech	1	3	4	3	11	L4	n	n	n	n	n	n	n
Betulaceae	<i>Corylus cornuta</i>	beaked hazel	2	4	3	4	13	L4	n	n					
Betulaceae	<i>Ostrya virginiana</i>	ironwood	1	3	2	2	8	L5	n	n	n	n	n	n	n
Bignoniaceae	<i>Catalpa speciosa</i>	northern catalpa	3	ns	ns	ns	3	L+	p						
Boraginaceae	<i>Cynoglossum officinale</i>	hound's-tongue	1	ns	ns	ns	1	L+		n					
Boraginaceae	<i>Echium vulgare</i>	viper's bugloss	1	ns	ns	ns	1	L+	n	n					
Boraginaceae	<i>Hackelia virginiana</i>	Virginia stickseed	1	2	0	2	5	L5	n	n					
Boraginaceae	<i>Hydrophyllum virginianum</i>	Virginia waterleaf	1	2	1	2	6	L5	n		n	n		n	n
Boraginaceae	<i>Lappula squarrosa</i>	Eurasian stickseed	4	ns	ns	ns	4	L+		n					
Boraginaceae	<i>Mertensia virginica</i>	Virginia bluebells	4	ns	ns	ns	4	L+?					pr?cf		
Boraginaceae	<i>Myosotis laxa</i>	smaller forget-me-not	1	4	2	4	11	L4	n	n	n	n			
Boraginaceae	<i>Myosotis scorpioides</i>	true forget-me-not	1	ns	ns	ns	1	L+	n	n	n	n			
Boraginaceae	<i>Symphytum officinale</i>	common comfrey	1	ns	ns	ns	1	L+		n					
Brassicaceae	<i>Alliaria petiolata</i>	garlic mustard	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Brassicaceae	<i>Barbarea vulgaris</i>	winter cress	1	ns	ns	ns	1	L+	n	n	n	n			n
Brassicaceae	<i>Borodinia laevigata</i>	smooth rock-cress	5	4	4	4	17	L2	n	n					n
Brassicaceae	<i>Brassica napus</i>	rapeseed	4	ns	ns	ns	4	L+	n						
Brassicaceae	<i>Cardamine concatenata</i>	cut-leaved toothwort	2	3	4	4	13	L4	n	n	n	n	n	n	n
Brassicaceae	<i>Cardamine dentata</i>	cuckoo-flower	4	4	4	4	16	L3							ncf
Brassicaceae	<i>Cardamine diphylla</i>	broad-leaved toothwort	1	3	4	4	12	L4	n	n	n	n		n	n
Brassicaceae	<i>Cardamine maxima</i>	hybrid toothwort	1	3	3	3	10	L5	n	n		n		n	
Brassicaceae	<i>Cardamine pensylvanica</i>	bitter cress	2	2	4	4	12	L4			n	n			
Brassicaceae	<i>Erysimum cheiranthoides</i>	wormseed mustard	1	ns	ns	ns	1	L+	n			n			
Brassicaceae	<i>Hesperis matronalis</i>	dame's rocket	1	ns	ns	ns	1	L+	n	n		n	n		n
Brassicaceae	<i>Lepidium campestre</i>	field pepper-grass	1	ns	ns	ns	1	L+	n	n	n	n			n
Brassicaceae	<i>Nasturtium microphyllum</i>	small-leaved watercress	2	ns	ns	ns	2	L+	n	n	n		n		
Brassicaceae	<i>Nasturtium officinale</i>	watercress	3	ns	ns	ns	3	L+?	n						
Brassicaceae	<i>Rorippa palustris</i> ssp. <i>palustris</i>	Fernald's marsh cress	1	2	4	2	9	L5	n		n				
Brassicaceae	<i>Thlaspi arvense</i>	penny-cress	1	ns	ns	ns	1	L+	n		n				
Buxaceae	<i>Pachysandra terminalis</i>	Japanese spurge	3	ns	ns	ns	3	L+	p						
Campanulaceae	<i>Campanula rapunculoides</i>	creeping bellflower	1	ns	ns	ns	1	L+		n					
Campanulaceae	<i>Lobelia inflata</i>	Indian tobacco	2	4	4	4	14	L3	n	n			n		
Campanulaceae	<i>Lobelia siphilitica</i>	great blue lobelia	2	3	4	5	14	L3	n	n	n				
Campanulaceae	<i>Palustricodon aparinoides</i>	marsh bellflower	3	4	4	4	15	L3							n
Cannabaceae	<i>Celtis occidentalis</i>	hackberry	3	ns	ns	ns	3	L+	pr						
Caprifoliaceae	<i>DierVilla lonicera</i>	bush honeysuckle	1	3	1	4	9	L5	n	n		n			n
Caprifoliaceae	<i>Lonicera canadensis</i>	fly honeysuckle	2	4	4	4	14	L3	n					n	
Caprifoliaceae	<i>Lonicera dioica</i>	wild honeysuckle	2	4	4	4	14	L3	n	n	n	n		n	
Caprifoliaceae	<i>Lonicera morrowii</i>	Morrow's honeysuckle	1	ns	ns	ns	1	L+	n	n					
Caprifoliaceae	<i>Lonicera tatarica</i>	Tartarian honeysuckle	1	ns	ns	ns	1	L+	n	n	n				n
Caprifoliaceae	<i>Lonicera x bella</i>	shrub honeysuckle	1	ns	ns	ns	1	L+	n			n			
Caprifoliaceae	<i>Lonicera xylosteum</i>	European fly honeysuckle	2	ns	ns	ns	2	L+							n
Caprifoliaceae	<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	western snowberry	2	ns	ns	ns	2	L+	n	p					
Caprifoliaceae	<i>Triosteum aurantiacum</i>	wild coffee	2	5	4	3	14	L3	n					n	n
Caryophyllaceae	<i>Cerastium fontanum</i>	mouse-ear chickweed	1	ns	ns	ns	1	L+	n	n	n	n			n
Caryophyllaceae	<i>Saponaria officinalis</i>	bouncing Bet	1	ns	ns	ns	1	L+	n						
Caryophyllaceae	<i>Silene vulgaris</i>	bladder campion	1	ns	ns	ns	1	L+		n					n
Caryophyllaceae	<i>Spergularia marina</i>	salt-marsh sand spurrey	3	ns	ns	ns	3	L+	n						
Caryophyllaceae	<i>Stellaria graminea</i>	grass-leaved chickweed	2	ns	ns	ns	2	L+				n			
Caryophyllaceae	<i>Stellaria longifolia</i>	long-leaved chickweed	2	3	4	4	13	L4	n						
Celastraceae	<i>Celastrus orbiculatus</i>	oriental bittersweet	2	ns	ns	ns	2	L+	n	ncf					
Celastraceae	<i>Celastrus scandens</i>	American bittersweet	2	4	3	5	14	L3	n		ncf				
Celastraceae	<i>Euonymus alatus</i>	winged spindle-tree	2	ns	ns	ns	2	L+	n						
Celastraceae	<i>Euonymus europaeus</i>	European spindle-tree	2	ns	ns	ns	2	L+	n						
Celastraceae	<i>Euonymus obovatus</i>	running strawberry-bush	2	4	4	4	14	L3	n	n	n	n	n	n	n

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Colchicaceae	<i>Streptopus lanceolatus</i> var. <i>lanceolatus</i>	rose twisted-stalk	2	4	4	5	15	L3	n	n	n	n		n	n
Convolvulaceae	<i>Calystegia sepium</i>	hedge bindweed (sensu lato)	1	2	2	2	7	L5		n					
Convolvulaceae	<i>Calystegia sepium</i> ssp. <i>americana</i>	pink hedge bindweed	2	2	2	2	8	L5	n						
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed	1	ns	ns	ns	1	L+	n	n					
Cornaceae	<i>Cornus alternifolia</i>	alternate-leaved dogwood	1	2	1	2	6	L5	n	n	n	n		n	n
Cornaceae	<i>Cornus drummondii</i>	rough-leaved dogwood	5	ns	ns	ns	5	L+	pr						
Cornaceae	<i>Cornus obliqua</i>	silky dogwood	2	3	5	3	13	L4	n						
Cornaceae	<i>Cornus racemosa</i>	grey dogwood	2	2	3	2	9	L5	pr	p					
Cornaceae	<i>Cornus rugosa</i>	round-leaved dogwood	2	4	3	3	12	L4	n	n					n
Cornaceae	<i>Cornus sericea</i>	red-osier dogwood	1	2	0	3	6	L5	n	n	n	n	n		n
Crassulaceae	<i>Hylotelephium telephium</i>	live-forever	2	ns	ns	ns	2	L+	n	n					
Cucurbitaceae	<i>Echinocystis lobata</i>	wild cucumber	1	2	3	1	7	L5	n	n					n
Cupressaceae	<i>Juniperus chinensis</i>	Chinese juniper	2	ns	ns	ns	2	L+	n						
Cupressaceae	<i>Juniperus sabina</i>	savin juniper	4	ns	ns	ns	4	L+	n						
Cupressaceae	<i>Juniperus virginiana</i>	red cedar	1	2	4	3	10	L5	n						
Cupressaceae	<i>Juniperus x pfitzeriana</i>	pfitzer juniper	3	ns	ns	ns	3	L+		ncf					
Cupressaceae	<i>Thuja occidentalis</i>	white cedar	1	4	0	5	10	L5	pn	n	n	n	n		n
Cyperaceae	<i>Carex albursina</i>	white bear sedge	2	3	5	4	14	L3	n	n	n	n		n	
Cyperaceae	<i>Carex alopecoidea</i>	foxtail wood sedge	2	3	5	4	14	L3	n	n					
Cyperaceae	<i>Carex arctata</i>	nodding wood sedge	1	4	2	3	10	L5	n	n	n	n		n	n
Cyperaceae	<i>Carex aurea</i>	golden-fruited sedge	1	2	4	4	11	L4	n						
Cyperaceae	<i>Carex backii</i>	Back's sedge	4	3	4	4	15	L3	n						
Cyperaceae	<i>Carex bebbii</i>	Bebb's sedge	1	2	2	3	8	L5			n				
Cyperaceae	<i>Carex blanda</i>	common wood sedge	1	2	1	2	6	L5	n	n	n	n	n	n	n
Cyperaceae	<i>Carex cephaloidea</i>	thin-leaved sedge	3	3	5	3	14	L3	n	n					
Cyperaceae	<i>Carex cephalophora</i>	oval-headed sedge	2	3	4	4	13	L4	n	n	n	n			
Cyperaceae	<i>Carex communis</i>	fibrous-rooted sedge	1	4	3	3	11	L4	n			n	n		n
Cyperaceae	<i>Carex cristatella</i>	crested sedge	1	2	4	1	8	L5	n	n	n	n	n		n
Cyperaceae	<i>Carex deweyana</i>	Dewey's sedge	1	4	1	3	9	L5	n	n		n			n
Cyperaceae	<i>Carex eburnea</i>	bristle-leaved sedge	2	4	4	4	14	L3	n	n				n	
Cyperaceae	<i>Carex echinodes</i>	marsh straw sedge	2	3	2	3	10	L5	n						
Cyperaceae	<i>Carex gracilescens</i>	rather slender sedge	5	3	4	4	16	L3		n					
Cyperaceae	<i>Carex gracillima</i>	graceful sedge	1	3	2	2	8	L5			n	n	n	n	n
Cyperaceae	<i>Carex granularis</i>	meadow sedge	1	2	1	3	7	L5	n	n		n		n	
Cyperaceae	<i>Carex hirtifolia</i>	hairy wood sedge	2	3	4	3	12	L4	n	n		n		n	
Cyperaceae	<i>Carex hitchcockiana</i>	Hitchcock's sedge	2	3	5	3	13	L4	n	n	n	n		n	
Cyperaceae	<i>Carex hystericina</i>	porcupine sedge	1	3	2	5	11	L4	n	n	n	n			
Cyperaceae	<i>Carex laevivaginata</i>	smooth-sheathed sedge	2	4	4	4	14	L3	n	n					
Cyperaceae	<i>Carex laxiculmis</i> var. <i>laxiculmis</i>	spreading wood sedge	3	3	5	3	14	L3	n	n				n	
Cyperaceae	<i>Carex laxiflora</i>	loose-flowered sedge	1	3	4	3	11	L4	n	n		n		n	
Cyperaceae	<i>Carex lupulina</i>	hop sedge	1	4	4	4	13	L4	n						
Cyperaceae	<i>Carex molesta</i>	troublesome sedge	3	3	4	4	14	L3	n						
Cyperaceae	<i>Carex peckii</i>	Peck's sedge	1	3	4	3	11	L4	n	n				n	n
Cyperaceae	<i>Carex pedunculata</i>	early-flowering sedge	1	3	2	3	9	L5	n	n		n		n	
Cyperaceae	<i>Carex peltita</i>	woolly sedge	2	3	4	3	12	L4	n			n			
Cyperaceae	<i>Carex pensylvanica</i>	Pennsylvania sedge	1	4	3	4	12	L4	n	n	n	n	n		n
Cyperaceae	<i>Carex plantaginea</i>	plantain-leaved sedge	2	4	5	4	15	L3	n	n					n
Cyperaceae	<i>Carex platyphylla</i>	broad-leaved sedge	3	4	4	4	15	L3	n	n		n		n	
Cyperaceae	<i>Carex projecta</i>	necklace sedge	2	2	3	4	11	L4					n		n
Cyperaceae	<i>Carex pseudocyperus</i>	pseudocyperus sedge	2	3	2	4	11	L4	n	p					
Cyperaceae	<i>Carex radiata</i>	straight-styled sedge	1	2	2	2	7	L5	n	n	n	n		n	
Cyperaceae	<i>Carex retrorsa</i>	retorse sedge	1	3	3	4	11	L4	n	n	n				
Cyperaceae	<i>Carex rosea</i>	curly-styled sedge	1	2	3	2	8	L5	n	n		n	n		n
Cyperaceae	<i>Carex sparganioides</i>	bur-reed sedge	2	2	4	2	10	L5	n	n		n	n		n
Cyperaceae	<i>Carex spicata</i>	spiked sedge	1	ns	ns	ns	1	L+	n	n		n			
Cyperaceae	<i>Carex sprengei</i>	long-beaked sedge	2	4	4	2	12	L4	n	n		n	n	n	n
Cyperaceae	<i>Carex stipata</i>	awl-fruited sedge	1	3	2	3	9	L5		n	n	n	n		n
Cyperaceae	<i>Carex stricta</i>	tussock sedge	2	3	3	4	12	L4	n			n	n		n
Cyperaceae	<i>Carex tenera</i>	straw sedge (sensu lato)	2	3	0	3	8	L5		n	n	n	n		

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Cyperaceae	<i>Carex vulpinoidea</i>	fox sedge	1	2	4	1	8	L5	n	n	n	n	n		n
Cyperaceae	<i>Carex woodii</i>	purple-tinged sedge	3	3	5	3	14	L3	n						
Cyperaceae	<i>Cyperus esculentus</i>	yellow nut-sedge	2	ns	4	1	7	L+?	n						
Cyperaceae	<i>Eleocharis erythropoda</i>	creeping spike-rush	1	2	4	1	8	L5	n	n		n			
Cyperaceae	<i>Schoenoplectus acutus</i> var. <i>acutus</i>	hard-stemmed bulrush	3	3	5	4	15	L3	n						
Cyperaceae	<i>Schoenoplectus tabernaemontani</i>	soft-stemmed bulrush	1	2	5	3	11	L4	n	n	n	n			
Cyperaceae	<i>Scirpus atrovirens</i>	black-fruited bulrush	1	2	4	2	9	L5	n	n		n	n		n
Cyperaceae	<i>Scirpus cyperinus</i>	woolly bulrush	2	3	2	5	12	L4	pcf	p	n		n		n
Cyperaceae	<i>Scirpus microcarpus</i>	barber-pole bulrush	1	2	4	3	10	L5	n	n		n			
Dryopteridaceae	<i>Dryopteris carthusiana</i>	spinulose wood fern	1	3	1	2	7	L5	n	n	n	n	n	n	n
Dryopteridaceae	<i>Dryopteris cristata</i>	crested wood fern	2	3	4	4	13	L4			n				
Dryopteridaceae	<i>Dryopteris intermedia</i>	evergreen wood fern	1	4	4	3	12	L4	n	n	n	n		n	n
Dryopteridaceae	<i>Dryopteris marginalis</i>	marginal wood fern	1	3	3	4	11	L4	n	n	n	n		n	n
Dryopteridaceae	<i>Dryopteris x triplioidea</i>	confusing hybrid wood fern	2	2	3	3	10	L5	n						
Dryopteridaceae	<i>Polystichum acrostichoides</i>	Christmas fern	2	3	5	3	13	L4	n	n	n	n		n	n
Elaeagnaceae	<i>Elaeagnus angustifolia</i>	Russian olive	1	ns	ns	ns	1	L+	n						
Elaeagnaceae	<i>Elaeagnus umbellata</i>	autumn olive	1	ns	ns	ns	1	L+	n	n					
Equisetaceae	<i>Equisetum arvense</i>	field horsetail	1	2	1	1	5	L5	n	n	n	n	n		n
Equisetaceae	<i>Equisetum fluviatile</i>	water horsetail	2	4	5	4	15	L3	n			n			
Equisetaceae	<i>Equisetum hyemale</i> ssp. <i>affine</i>	scouring-rush	1	2	1	2	6	L5	n	n	n	n	n		n
Equisetaceae	<i>Equisetum palustre</i>	marsh horsetail	5	5	5	4	19	L1							ncf
Equisetaceae	<i>Equisetum pratense</i>	thicket horsetail	2	4	5	3	14	L3							n
Equisetaceae	<i>Equisetum scirpoides</i>	dwarf scouring-rush	2	4	5	5	16	L3				n			
Equisetaceae	<i>Equisetum variegatum</i> ssp. <i>variegatum</i>	variegated scouring-rush	2	2	5	4	13	L4	n	n					
Ericaceae	<i>Hypopitys monotropa</i>	pinetop	2	4	5	5	16	L3	n	n	n				
Ericaceae	<i>Monotropa uniflora</i>	Indian-pipe	2	4	5	5	16	L3	n	n					
Ericaceae	<i>Pyrola elliptica</i>	shinleaf	2	4	4	4	14	L3	n	n					n
Euphorbiaceae	<i>Acalypha rhomboidea</i>	three-seeded mercury	2	1	2	0	5	L5		n					
Fabaceae	<i>Amphicarpaea bracteata</i>	hog-peanut	1	2	2	2	7	L5	n	n	n	n	n		n
Fabaceae	<i>Apios americana</i>	ground-nut	3	4	3	3	13	L4	n	n		n			
Fabaceae	<i>Caragana arborescens</i>	Siberian pea-shrub	2	ns	ns	ns	2	L+	pr	p					
Fabaceae	<i>Desmodium canadense</i>	showy tick-trefoil	2	2	3	3	10	L5	n	n					n
Fabaceae	<i>Gleditsia triacanthos</i>	honey locust	2	ns	ns	ns	2	L+	p						
Fabaceae	<i>Hylodesmum glutinosum</i>	pointed-leaved tick-trefoil	3	4	4	5	16	L3	n	n	n				
Fabaceae	<i>Lotus corniculatus</i>	bird's foot trefoil	1	ns	ns	ns	1	L+	n	n	n				
Fabaceae	<i>Medicago lupulina</i>	black medick	1	ns	ns	ns	1	L+	n	n	n	n			
Fabaceae	<i>Medicago sativa</i> ssp. <i>sativa</i>	alfalfa	1	ns	ns	ns	1	L+		n					
Fabaceae	<i>Melilotus albus</i>	white sweet clover	1	ns	ns	ns	1	L+	n	n	n	n			
Fabaceae	<i>Melilotus officinalis</i>	yellow sweet clover	1	ns	ns	ns	1	L+		n			n		n
Fabaceae	<i>Robinia pseudoacacia</i>	black locust	1	ns	ns	ns	1	L+	n	n		n			pn
Fabaceae	<i>Securigera varia</i>	crown vetch	1	ns	ns	ns	1	L+	n	n					
Fabaceae	<i>Trifolium pratense</i>	red clover	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Fabaceae	<i>Trifolium repens</i>	white clover	1	ns	ns	ns	1	L+	n	n		n			n
Fabaceae	<i>Vicia cracca</i>	cow vetch	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Fabaceae	<i>Vicia tetrasperma</i>	slender vetch	2	ns	ns	ns	2	L+			n				
Fagaceae	<i>Fagus grandifolia</i>	American beech	1	4	3	4	12	L4	n	n	n	n	n	n	n
Fagaceae	<i>Quercus alba</i>	white oak	3	5	4	5	17	L2			ncf	ncf			ncf
Fagaceae	<i>Quercus macrocarpa</i>	bur oak	1	4	3	3	11	L4	pn	n	n	n	n		n
Fagaceae	<i>Quercus rubra</i>	red oak	1	4	1	5	11	L4	pn	pn	n	n	n	n	pn
Geraniaceae	<i>Geranium robertianum</i>	herb Robert	1	ns	ns	ns	1	L+?	n	n	n	n	n	n	n
Grossulariaceae	<i>Ribes americanum</i>	wild black currant	1	3	2	2	8	L5			n	n		n	n
Grossulariaceae	<i>Ribes cynosbati</i>	prickly gooseberry	1	3	2	2	8	L5	n	n	n	n		n	n
Grossulariaceae	<i>Ribes rubrum</i>	garden red currant	1	ns	ns	ns	1	L+		n					
Haloragaceae	<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	3	ns	ns	ns	3	L+							n
Haloragaceae	<i>Penthorum sedoides</i>	ditch stonewort	2	2	4	3	11	L4	n						
Hydrocharitaceae	<i>Elodea canadensis</i>	common water-weed	1	3	5	3	12	L4	n						
Hydrocharitaceae	<i>Vallisneria spiralis</i>	tape-grass	4	4	5	4	17	L2		p					
Hypericaceae	<i>Hypericum perforatum</i>	common St. John's-wort	1	ns	ns	ns	1	L+	n	n	n	n			
Iridaceae	<i>Iris pseudacorus</i>	yellow flag	2	ns	ns	ns	2	L+	n	n		n			

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Iridaceae	<i>Iris virginica</i> var. <i>shrevei</i>	southern blue flag	4	2	4	3	13	L4	pr						
Iridaceae	<i>Sisyrinchium montanum</i>	blue-eyed grass	2	3	3	5	13	L4					n		
Juglandaceae	<i>Carya cordiformis</i>	bitternut hickory	1	4	4	2	11	L4	n	n	n	n	n		n
Juglandaceae	<i>Juglans cinerea</i>	butternut	1	5	4	4	14	L3		n			n		
Juglandaceae	<i>Juglans nigra</i>	black walnut	1	1	2	1	5	L5	pn	pn					
Juglandaceae	<i>Juglans x bixbyi</i>	buartnut	3	ns	ns	ns	3	L+	n						
Juncaceae	<i>Juncus articulatus</i>	jointed rush	1	2	4	2	9	L5	n	n			n		n
Juncaceae	<i>Juncus bufonius</i>	toad rush	2	1	4	1	8	L5	n						
Juncaceae	<i>Juncus dudleyi</i>	Dudley's rush	1	2	3	1	7	L5	n			n	n		n
Juncaceae	<i>Juncus effusus</i>	soft rush	1	2	4	3	10	L5	n	p			n		n
Juncaceae	<i>Juncus nodosus</i>	knotted rush	2	2	5	3	12	L4	n				n		n
Juncaceae	<i>Juncus tenuis</i>	path rush	1	2	1	1	5	L5		n	n		n		n
Juncaceae	<i>Luzula acuminata</i>	hairy wood rush	3	4	4	3	14	L3	n	n					
Lamiaceae	<i>Ajuga reptans</i>	common bugle	2	ns	ns	ns	2	L+	n	n					
Lamiaceae	<i>Clinopodium vulgare</i>	wild basil	2	3	1	3	9	L5		n					
Lamiaceae	<i>Glechoma hederacea</i>	creeping Charlie	1	ns	ns	ns	1	L+	n	n					n
Lamiaceae	<i>Leonurus cardiaca</i> ssp. <i>cardiaca</i>	motherwort	1	ns	ns	ns	1	L+	n	n					n
Lamiaceae	<i>Lycopus americanus</i>	cut-leaved water-horehound	1	4	3	3	11	L4	n		n	n			n
Lamiaceae	<i>Lycopus uniflorus</i>	northern water-horehound	1	3	2	3	9	L5	n	n	n	n			
Lamiaceae	<i>Melissa officinalis</i>	lemon-balm	4	ns	ns	ns	4	L+	n						
Lamiaceae	<i>Mentha canadensis</i>	wild mint	1	2	2	2	7	L5			n	n			n
Lamiaceae	<i>Mentha spicata</i>	spear mint	1	ns	ns	ns	1	L+		n					
Lamiaceae	<i>Mentha x piperita</i>	peppermint	3	ns	ns	ns	3	L+	n						
Lamiaceae	<i>Monarda fistulosa</i> var. <i>fistulosa</i>	wild bergamot	1	3	2	3	9	L5	n	n			n		n
Lamiaceae	<i>Nepeta cataria</i>	catnip	1	ns	ns	ns	1	L+		n			n		n
Lamiaceae	<i>Prunella vulgaris</i>	heal-all (sensu lato)	2	ns	ns	ns	2	L+?							n
Lamiaceae	<i>Prunella vulgaris</i> ssp. <i>lanceolata</i>	heal-all (native)	1	2	2	2	7	L5	n	n	n	n	n		
Lamiaceae	<i>Scutellaria galericulata</i>	common skullcap	2	2	1	2	7	L5		n					
Lamiaceae	<i>Scutellaria lateriflora</i>	mad-dog skullcap	2	2	2	3	9	L5		n	n				
Lamiaceae	<i>Teucrium canadense</i>	wood-sage	3	3	3	4	13	L4	n						
Lamiaceae	<i>Thymus praecox</i> ssp. <i>britannicus</i>	creeping thyme	3	ns	ns	ns	3	L+	n	n					
Liliaceae	<i>Erythronium americanum</i> ssp. <i>americanum</i>	yellow trout-lily	1	3	2	2	8	L5	n	n	n	n	n	n	n
Liliaceae	<i>Lilium michiganense</i>	Michigan lily	2	4	3	5	14	L3	n	n					
Liliaceae	<i>Medeola virginiana</i>	Indian cucumber-root	3	5	4	5	17	L2						n	
Lycopodiaceae	<i>Huperzia lucidula</i>	shining club-moss	4	5	5	5	19	L1		n	n				
Lythraceae	<i>Lythrum salicaria</i>	purple loosestrife	1	ns	ns	ns	1	L+	n	n	n				
Malvaceae	<i>Tilia americana</i>	basswood	1	3	1	3	8	L5	n	n	n	n	n		n
Malvaceae	<i>Tilia cordata</i>	little-leaf linden	2	ns	ns	ns	2	L+	n						
Malvaceae	<i>Tilia x flavescens</i>	hybrid linden	3	ns	ns	ns	3	L+	n						
Melanthiaceae	<i>Trillium erectum</i>	red trillium	1	4	3	5	13	L4	n	n	n	n	n	n	n
Melanthiaceae	<i>Trillium grandiflorum</i>	white trillium	1	3	3	5	12	L4	n	n	n	n	n	n	n
Menispermaceae	<i>Menispermum canadense</i>	moonseed	2	4	4	4	14	L3	n	n					
Montiaceae	<i>Claytonia virginica</i>	narrow-leaved spring beauty	2	4	4	5	15	L3	n	n	n		n	n	n
Moraceae	<i>Morus alba</i>	white mulberry	1	ns	ns	ns	1	L+	n						
Nymphaeaceae	<i>Nymphaea odorata</i> ssp. <i>tuberosa</i>	tuberous water-lily	3	3	5	3	14	L3	pr	p					
Oleaceae	<i>Forsythia suspensa</i>	weeping forsythia	3	ns	ns	ns	3	L+	pr						
Oleaceae	<i>Fraxinus americana</i>	white ash	1	5	0	3	9	L5	n	n	n	n	n	n	n
Oleaceae	<i>Fraxinus excelsior</i>	European ash	3	ns	ns	ns	3	L+	n						
Oleaceae	<i>Fraxinus nigra</i>	black ash	1	5	4	3	13	L4	n	n	n				
Oleaceae	<i>Fraxinus pennsylvanica</i>	red ash	1	5	0	3	9	L5	n	p					
Oleaceae	<i>Ligustrum vulgare</i>	privet	1	ns	ns	ns	1	L+	n						
Oleaceae	<i>Syringa vulgaris</i>	common lilac	1	ns	ns	ns	1	L+	n	n			n		n
Onagraceae	<i>Circaea alpina</i>	smaller enchanter's nightshade	2	4	4	4	14	L3	n	n		n	n		n
Onagraceae	<i>Circaea canadensis</i> ssp. <i>canadensis</i>	enchanter's nightshade	1	1	1	1	4	L5	n	n	n	n	n	n	n
Onagraceae	<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	sticky willow-herb	1	2	2	2	7	L5			n	n			
Onagraceae	<i>Epilobium coloratum</i>	purple-leaved willow-herb	1	3	2	2	8	L5	n	n	n				
Onagraceae	<i>Epilobium hirsutum</i>	European willow-herb	2	ns	ns	ns	2	L+		n					
Onagraceae	<i>Epilobium parviflorum</i>	small-flowered willow-herb	1	ns	ns	ns	1	L+		n	n	n			
Onagraceae	<i>Oenothera biennis</i>	common evening-primrose	1	1	1	1	4	L5		n	n				

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Onocleaceae	<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>	ostrich fern	1	2	1	2	6	L5	n	n	n	n	n		n
Onocleaceae	<i>Onoclea sensibilis</i>	sensitive fern	1	3	1	3	8	L5	n	n	n	n	n		n
Ophioglossaceae	<i>Botrypus virginianus</i>	rattlesnake fern	3	5	4	5	17	L2		n	n			n	n
Orchidaceae	<i>Cypripedium parviflorum</i> var. <i>makasin</i>	smaller yellow lady's-slipper	2	4	4	5	15	L3		n					
Orchidaceae	<i>Epipactis helleborine</i>	helleborine	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Orchidaceae	<i>Liparis loeselii</i>	Loesel's twayblade	3	3	5	5	16	L3		n					
Orobanchaceae	<i>Epifagus virginiana</i>	beech-drops	2	3	5	2	12	L4	n	n		n			
Osmundaceae	<i>Claytosmunda claytoniana</i>	interrupted fern	3	5	5	5	18	L2	n			n			
Oxalidaceae	<i>Oxalis dillenii</i>	deflexed yellow wood-sorrel	2	1	0	1	4	L5	n						
Oxalidaceae	<i>Oxalis montana</i>	pink wood-sorrel	4	4	5	4	17	L2							n
Oxalidaceae	<i>Oxalis stricta</i>	common yellow wood-sorrel	1	1	1	1	4	L5	n	n		n			
Papaveraceae	<i>Sanguinaria canadensis</i>	bloodroot	1	3	2	3	9	L5	n	n	n	n	n	n	n
Phrymaceae	<i>Mimulus ringens</i>	square-stemmed monkey-flower	2	3	3	4	12	L4	n		n				
Phrymaceae	<i>Phryma leptostachya</i>	lopseed	2	2	3	2	9	L5	n	n	n	n			
Pinaceae	<i>Larix decidua</i>	European larch	3	ns	ns	ns	3	L+	p	p					
Pinaceae	<i>Picea abies</i>	Norway spruce	2	ns	ns	ns	2	L+	p	pr					
Pinaceae	<i>Picea glauca</i>	white spruce	2	5	4	4	15	L3	pr	p					
Pinaceae	<i>Picea pungens</i>	Colorado spruce	5	ns	ns	ns	5	L+		p					
Pinaceae	<i>Pinus banksiana</i>	Jack pine	5	ns	ns	ns	5	L+		p					
Pinaceae	<i>Pinus nigra</i>	Austrian pine	3	ns	ns	ns	3	L+	p						
Pinaceae	<i>Pinus resinosa</i>	red pine	4	5	5	5	19	L1	p	p					p
Pinaceae	<i>Pinus strobus</i>	white pine	1	4	3	4	12	L4	pn	pn	n	n	n	n	pn
Pinaceae	<i>Pinus sylvestris</i>	Scots pine	1	ns	ns	ns	1	L+	pn	n					
Pinaceae	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	Rocky Mountain Douglas-fir	5	ns	ns	ns	5	L+	p	pr					
Pinaceae	<i>Tsuga canadensis</i>	eastern hemlock	1	4	3	5	13	L4	n	n	n	n	n	n	n
Plantaginaceae	<i>Chelone glabra</i>	white turtlehead	2	3	4	5	14	L3	n	n	n	n			
Plantaginaceae	<i>Digitalis lanata</i>	Grecian foxglove	4	ns	ns	ns	4	L+	n		n				
Plantaginaceae	<i>Linaria vulgaris</i>	butter-and-eggs	1	ns	ns	ns	1	L+		n					n
Plantaginaceae	<i>Penstemon hirsutus</i>	hairy beard-tongue	4	4	4	3	15	L3	n	n			n		n
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain	1	ns	ns	ns	1	L+	n	n					
Plantaginaceae	<i>Plantago major</i>	common plantain	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Plantaginaceae	<i>Plantago rugelii</i>	red-stemmed plantain	1	2	0	1	4	L5	n	n	n				
Plantaginaceae	<i>Veronica americana</i>	American speedwell	2	3	3	4	12	L4	n	n	n	n			n
Plantaginaceae	<i>Veronica anagallis-aquatica</i>	water speedwell	2	3	4	3	12	L+?	n						
Plantaginaceae	<i>Veronica arvensis</i>	corn speedwell	2	ns	ns	ns	2	L+	n						
Plantaginaceae	<i>Veronica officinalis</i>	common speedwell	1	ns	ns	ns	1	L+	n			n			n
Plantaginaceae	<i>Veronica serpyllifolia</i>	thyme-leaved speedwell	1	ns	ns	ns	1	L+	n	n		n			
Poaceae	<i>Agrostis gigantea</i>	redtop	1	ns	ns	ns	1	L+	n				n		n
Poaceae	<i>Agrostis stolonifera</i>	creeping bent grass	1	ns	ns	ns	1	L+?	n	n					
Poaceae	<i>Alopecurus pratensis</i>	meadow foxtail	2	ns	ns	ns	2	L+	n						
Poaceae	<i>Bromus inermis</i>	smooth brome grass	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Poaceae	<i>Bromus latiglumis</i>	eared brome	3	2	4	3	12	L4	n	n					
Poaceae	<i>Calamagrostis canadensis</i>	Canada blue-joint	2	3	4	4	13	L4			n				
Poaceae	<i>Cinna latifolia</i>	nodding wood reed	2	3	5	3	13	L4	n						
Poaceae	<i>Dactylis glomerata</i>	orchard grass	1	ns	ns	ns	1	L+	n	n	n				n
Poaceae	<i>Danthonia spicata</i>	poverty oat grass	2	3	3	4	12	L4	n	n					
Poaceae	<i>Dichanthelium implicatum</i>	hairy panic grass	2	3	3	3	11	L4	n	n					
Poaceae	<i>Digitaria ischaemum</i>	smooth crab grass	1	ns	ns	ns	1	L+		n					
Poaceae	<i>Echinochloa crus-galli</i>	barnyard grass	1	ns	ns	ns	1	L+		n					
Poaceae	<i>Echinochloa muricata</i> var. <i>microstachya</i>	small-spiked barnyard grass	2	2	4	0	8	L5	n						
Poaceae	<i>Elymus canadensis</i>	Canada wild rye	3	2	5	3	13	L4	pr						
Poaceae	<i>Elymus hystrix</i>	bottle-brush grass	2	3	3	3	11	L4	n	n					
Poaceae	<i>Elymus repens</i>	quack grass	1	ns	ns	ns	1	L+	n						
Poaceae	<i>Elymus riparius</i>	riverbank wild rye	2	2	4	4	12	L4	n	n					
Poaceae	<i>Elymus virginicus</i> var. <i>virginicus</i>	Virginia wild rye	2	2	3	2	9	L5	n	n					
Poaceae	<i>Festuca filiformis</i>	hair fescue	3	ns	ns	ns	3	L+		n					
Poaceae	<i>Festuca rubra</i> ssp. <i>rubra</i>	red fescue	1	ns	ns	ns	1	L+	n	n			n		n
Poaceae	<i>Festuca subverticillata</i>	nodding fescue	3	2	4	3	12	L4	n	n		n			
Poaceae	<i>Festuca trachyphylla</i>	hard fescue	3	ns	ns	ns	3	L+		n					

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Poaceae	<i>Glyceria grandis</i>	tall manna grass	1	3	4	2	10	L5	n	n	n				
Poaceae	<i>Glyceria striata</i>	fowl manna grass	1	2	1	2	6	L5	n	n	n	n			
Poaceae	<i>Leersia oryzoides</i>	rice cut grass	1	2	2	2	7	L5	n	n	n	n			
Poaceae	<i>Leersia virginica</i>	white grass	2	2	4	3	11	L4	n	n					
Poaceae	<i>Lolium arundinaceum</i>	tall fescue	2	ns	ns	ns	2	L+	n						
Poaceae	<i>Lolium perenne</i>	perennial rye	1	ns	ns	ns	1	L+	n				n		n
Poaceae	<i>Lolium pratense</i>	meadow fescue	1	ns	ns	ns	1	L+	n	n					
Poaceae	<i>Milium effusum</i>	wood millet	4	5	5	3	17	L2			n			n	
Poaceae	<i>Muhlenbergia mexicana</i> var. <i>mexicana</i>	common muhly grass	2	2	0	1	5	L5	n	n					
Poaceae	<i>Oryzopsis asperifolia</i>	white-fruited mountain-rice	2	4	3	4	13	L4	n		n	n		n	
Poaceae	<i>Panicum virgatum</i>	switch grass	4	2	5	5	16	L3	pr	p					
Poaceae	<i>Patis racemosa</i>	black-fruited mountain-rice	3	3	5	4	15	L3	n						
Poaceae	<i>Phalaris arundinacea</i>	reed canary grass	1	ns	ns	ns	1	L+?	n	n	n	n	n		n
Poaceae	<i>Phleum pratense</i>	Timothy grass	1	ns	ns	ns	1	L+	n	n		n			n
Poaceae	<i>Phragmites australis</i> ssp. <i>australis</i>	common reed	1	ns	ns	ns	1	L+	n	n					
Poaceae	<i>Poa alsodes</i>	grove meadow grass	3	3	5	3	14	L3	n	n		n	n	n	n
Poaceae	<i>Poa annua</i>	annual blue grass	2	ns	ns	ns	2	L+	n						
Poaceae	<i>Poa bulbosa</i>	bulblet-bearing blue grass	4	ns	ns	ns	4	L+	n						
Poaceae	<i>Poa compressa</i>	flat-stemmed blue grass	1	ns	ns	ns	1	L+	n	n	n	n			
Poaceae	<i>Poa nemoralis</i>	woodland spear grass	1	ns	ns	ns	1	L+	n	n		n			
Poaceae	<i>Poa palustris</i>	fowl meadow-grass	1	2	3	2	8	L5	n		n	n			
Poaceae	<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky blue grass	1	ns	ns	ns	1	L+	n	n	n	n			n
Poaceae	<i>Schizachne purpurascens</i>	purple melic grass	2	3	3	5	13	L4	n	n	n	n		n	
Poaceae	<i>Schizachyrium scoparium</i>	little bluestem	4	4	5	5	18	L2	pr						
Poaceae	<i>Secale cereale</i>	rye	5	ns	ns	ns	5	L+	pr						
Poaceae	<i>Setaria pumila</i>	yellow foxtail	1	ns	ns	ns	1	L+		n					
Poaceae	<i>Setaria viridis</i>	green foxtail	1	ns	ns	ns	1	L+		n					
Poaceae	<i>Sorghastrum nutans</i>	Indian grass	5	4	5	4	18	L2	pr						
Poaceae	<i>Sphenopholis intermedia</i>	slender wedge grass	2	3	4	4	13	L4	n						
Poaceae	<i>Sporobolus cryptandrus</i>	sand dropseed	3	3	5	3	14	L3		n					
Polemoniaceae	<i>Phlox divaricata</i>	wild blue phlox	4	4	4	5	17	L2	n					n	n
Polygonaceae	<i>Fallopia convolvulus</i>	black bindweed	2	ns	ns	ns	2	L+		n					
Polygonaceae	<i>Persicaria hydropiper</i>	water-pepper	1	ns	ns	ns	1	L+?	n						
Polygonaceae	<i>Persicaria lapathifolia</i>	pale smartweed	1	1	4	0	6	L5	n						
Polygonaceae	<i>Persicaria maculosa</i>	lady's thumb	1	ns	ns	ns	1	L+	n		n				
Polygonaceae	<i>Polygonum aviculare</i> ssp. <i>aviculare</i>	prostrate knotweed	1	ns	ns	ns	1	L+		n					
Polygonaceae	<i>Reynoutria japonica</i> var. <i>japonica</i>	Japanese knotweed	1	ns	ns	ns	1	L+		n					
Polygonaceae	<i>Rumex crispus</i>	curly dock	1	ns	ns	ns	1	L+	n		n	n	n		n
Polygonaceae	<i>Rumex obtusifolius</i>	bitter dock	1	ns	ns	ns	1	L+			n				
Polypodiaceae	<i>Polypodium virginianum</i>	rock polypody	4	4	5	5	18	L2		n			n		n
Pontederiaceae	<i>Pontederia cordata</i>	pickerel-weed	4	4	5	4	17	L2		p					
Potamogetonaceae	<i>Potamogeton foliosus</i>	leafy pondweed	1	3	5	4	13	L4	n	n	n				
Potamogetonaceae	<i>Stuckenia pectinata</i>	sago pondweed	1	2	5	3	11	L4	n	n					
Primulaceae	<i>Lysimachia arvensis</i>	scarlet pimpernel	2	ns	ns	ns	2	L+	n						
Primulaceae	<i>Lysimachia borealis</i>	star-flower	1	4	4	5	14	L3		n					
Primulaceae	<i>Lysimachia ciliata</i>	fringed loosestrife	1	2	2	2	7	L5	n	n	n	n			n
Primulaceae	<i>Lysimachia nummularia</i>	moneywort	1	ns	ns	ns	1	L+		n					
Primulaceae	<i>Lysimachia terrestris</i>	swamp candles	4	4	4	4	16	L3		n					
Pteridaceae	<i>Adiantum pedatum</i>	northern maidenhair fern	2	3	5	5	15	L3	n			n		n	
Ranunculaceae	<i>Actaea pachypoda</i>	white baneberry	1	3	3	3	10	L5	n	n	n	n		n	n
Ranunculaceae	<i>Actaea rubra</i> f. <i>neglecta</i>	white form red baneberry	3	2	1	3	9	L5		n					
Ranunculaceae	<i>Actaea rubra</i> ssp. <i>rubra</i>	red baneberry	1	3	1	3	8	L5	n	n	n	n	n		n
Ranunculaceae	<i>Actaea x ludovici</i>	hybrid baneberry	3	3	4	3	13	L4	n						
Ranunculaceae	<i>Anemonastrum canadense</i>	Canada anemone	1	2	2	2	7	L5	n	n	n	n			n
Ranunculaceae	<i>Anemone cylindrica</i>	long-fruited thimbleweed	3	4	3	5	15	L3		n					
Ranunculaceae	<i>Anemone quinquefolia</i> var. <i>quinquefolia</i>	wood anemone	2	4	3	5	14	L3	n	n			n		
Ranunculaceae	<i>Anemone virginiana</i>	common thimbleweed	1	3	0	3	7	L5	n	n	n	n	n		n
Ranunculaceae	<i>Aquilegia canadensis</i>	wild columbine	1	4	2	5	12	L4	n	n	n	n	n		n
Ranunculaceae	<i>Caltha palustris</i>	marsh marigold	2	4	2	4	12	L4	n	n	n	n	n		n



## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Ranunculaceae	<i>Clematis virginiana</i>	virgin's bower	1	2	2	3	8	L5	n	n		n			
Ranunculaceae	<i>Hepatica acutiloba</i>	sharp-lobed hepatica	1	4	4	5	14	L3	n	n	n	n	n	n	n
Ranunculaceae	<i>Ranunculus abortivus</i>	kidney-leaved buttercup	1	3	1	2	7	L5	n	n	n	n	n	n	n
Ranunculaceae	<i>Ranunculus acris</i>	tall buttercup	1	ns	ns	ns	1	L+	n	n	n	n	n	n	n
Ranunculaceae	<i>Ranunculus caricetorum</i>	swamp buttercup	2	4	4	3	13	L4	n	n	n	n	n	n	n
Ranunculaceae	<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>	hooked buttercup	1	3	2	3	9	L5	n	n	n	n	n	n	n
Ranunculaceae	<i>Ranunculus repens</i>	creeping buttercup	1	ns	ns	ns	1	L+							n
Ranunculaceae	<i>Ranunculus sceleratus</i> var. <i>sceleratus</i>	cursed crowfoot	1	2	3	2	8	L+?	n		n	n	n	n	n
Ranunculaceae	<i>Thalictrum dioicum</i>	early meadow rue	1	3	3	2	9	L5	n	n	n	n	n	n	n
Ranunculaceae	<i>Thalictrum pubescens</i>	tall meadow rue	1	3	2	2	8	L5	n	n	n	n	n	n	n
Rhamnaceae	<i>Rhamnus cathartica</i>	common buckthorn	1	ns	ns	ns	1	L+	n	n	n	n	n	n	n
Rosaceae	<i>Agrimonia gryposepala</i>	agrimony	1	2	0	2	5	L5	n	n	n	n	n	n	n
Rosaceae	<i>Amelanchier laevis</i>	smooth serviceberry	1	2	4	3	10	L5		ncf					
Rosaceae	<i>Amelanchier sanguinea</i>	round-leaved serviceberry	2	2	3	4	11	L4	n						
Rosaceae	<i>Cotoneaster divaricatus</i>	bearberry cotoneaster	5	ns	ns	ns	5	L+	n						
Rosaceae	<i>Cotoneaster lucidus</i>	Peking cotoneaster	3	ns	ns	ns	3	L+	n						
Rosaceae	<i>Crataegus coccinea</i> var. <i>coccinea</i>	scarlet hawthorn	2	2	3	3	10	L5		ncf		n			
Rosaceae	<i>Crataegus coccinea</i> var. <i>pringlei</i>	Pringle's hawthorn	2	3	4	3	12	L4				n			
Rosaceae	<i>Crataegus macracantha</i>	long-spined hawthorn	1	2	4	3	10	L5	n			n			
Rosaceae	<i>Crataegus punctata</i>	dotted hawthorn	1	2	3	3	9	L5	n	n		n			ncf
Rosaceae	<i>Crataegus succulenta</i>	fleshy hawthorn	5	3	4	3	15	L3				n			
Rosaceae	<i>Crataegus x ninae-celottiae</i>	English-dotted hybrid hawthorn	3	ns	4	ns	7	L+		n					
Rosaceae	<i>Fragaria vesca</i> ssp. <i>americana</i>	woodland strawberry	1	2	2	2	7	L5			n	n	n	n	n
Rosaceae	<i>Fragaria virginiana</i>	wild strawberry (sensu lato)	1	2	0	2	5	L5		n		n			n
Rosaceae	<i>Fragaria virginiana</i> ssp. <i>glauca</i>	blue-leaved wild strawberry	2	2	0	2	6	L5	n						
Rosaceae	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	common wild strawberry	1	2	0	2	5	L5	n						
Rosaceae	<i>Geum aleppicum</i>	yellow avens	1	3	2	2	8	L5			n				
Rosaceae	<i>Geum canadense</i>	white avens	1	2	1	2	6	L5	n	n	n	n	n	n	n
Rosaceae	<i>Geum fragarioides</i>	barren strawberry	2	4	4	3	13	L4				n			
Rosaceae	<i>Geum urbanum</i>	urban avens	1	ns	ns	ns	1	L+	n	n					
Rosaceae	<i>Malus pumila</i>	apple	1	ns	ns	ns	1	L+	n	n	n	n	n	n	n
Rosaceae	<i>Physocarpus opulifolius</i>	ninebark	3	2	5	4	14	L3		p					
Rosaceae	<i>Potentilla argentea</i>	silvery cinquefoil	2	ns	ns	ns	2	L+	n						
Rosaceae	<i>Potentilla inclinata</i>	intermediate cinquefoil	3	ns	ns	ns	3	L+	n						
Rosaceae	<i>Potentilla norvegica</i>	rough cinquefoil	1	ns	ns	ns	1	L+?		n					
Rosaceae	<i>Potentilla recta</i>	sulphur cinquefoil	1	ns	ns	ns	1	L+	n	n	n		n		n
Rosaceae	<i>Prunus avium</i>	mazzard cherry	2	ns	ns	ns	2	L+				n			
Rosaceae	<i>Prunus pensylvanica</i>	pin cherry	2	4	3	3	12	L4	n					n	n
Rosaceae	<i>Prunus serotina</i>	black cherry	1	2	0	2	5	L5	n	n	n	n	n	n	n
Rosaceae	<i>Prunus virginiana</i> var. <i>virginiana</i>	choke cherry	1	2	0	1	4	L5	n	n	n	n	n	n	n
Rosaceae	<i>Pyrus communis</i>	pear	1	ns	ns	ns	1	L+							n
Rosaceae	<i>Rosa blanda</i>	smooth wild rose	1	3	3	4	11	L4	n	n		n			
Rosaceae	<i>Rosa canina</i>	dog rose	2	ns	ns	ns	2	L+							n
Rosaceae	<i>Rosa multiflora</i>	multiflora rose	1	ns	ns	ns	1	L+	n	n					
Rosaceae	<i>Rubus allegheniensis</i>	common blackberry	1	3	0	1	5	L5	n	n	n	n	n	n	n
Rosaceae	<i>Rubus idaeus</i> ssp. <i>strigosus</i>	wild red raspberry	1	1	0	1	3	L5	n	n	n	n	n	n	n
Rosaceae	<i>Rubus occidentalis</i>	wild black raspberry	1	1	0	1	3	L5	n	n	n	n	n	n	n
Rosaceae	<i>Rubus odoratus</i>	purple-flowering raspberry	1	2	2	2	7	L5	n	n	n	n	n	n	n
Rosaceae	<i>Rubus pubescens</i>	dwarf raspberry	1	3	3	5	12	L4				n			n
Rosaceae	<i>Sorbus aucuparia</i>	European mountain-ash	1	ns	ns	ns	1	L+			n				n
Rubiaceae	<i>Galium aparine</i>	cleavers	1	1	1	2	5	L5	n	n					
Rubiaceae	<i>Galium asprellum</i>	rough bedstraw	1	2	4	2	9	L5				n			
Rubiaceae	<i>Galium boreale</i>	northern bedstraw	3	4	4	3	14	L3	n	n					
Rubiaceae	<i>Galium mollugo</i>	white bedstraw	1	ns	ns	ns	1	L+	n						
Rubiaceae	<i>Galium palustre</i>	marsh bedstraw	1	2	3	3	9	L5	n	n	n				
Rubiaceae	<i>Galium triflorum</i>	sweet-scented bedstraw	1	2	2	2	7	L5	n	n	n	n	n	n	n
Rubiaceae	<i>Galium verum</i>	yellow bedstraw	2	ns	ns	ns	2	L+	n	n					
Rutaceae	<i>Zanthoxylum americanum</i>	prickly-ash	3	4	4	3	14	L3	n	n	n	n	n	n	n
Salicaceae	<i>Populus balsamifera</i>	balsam poplar	1	2	2	2	7	L5	n	n	n	n	n	n	n

## Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Salicaceae	<i>Populus deltoides</i>	cottonwood	1	1	3	1	6	L5	n	n					
Salicaceae	<i>Populus grandidentata</i>	large-toothed aspen	1	3	4	3	11	L4							n
Salicaceae	<i>Populus tremuloides</i>	trembling aspen	1	3	1	3	8	L5	n	n		n	n		n
Salicaceae	<i>Populus x canadensis</i>	Carolina poplar	1	ns	ns	ns	1	L+	n	p					
Salicaceae	<i>Salix alba</i>	white willow	1	ns	ns	ns	1	L+	n			n			n
Salicaceae	<i>Salix amygdaloides</i>	peach-leaved willow	1	2	5	3	11	L4	n	n		n			
Salicaceae	<i>Salix aurita</i>	yellowish willow	5	ns	ns	ns	5	L+		p					
Salicaceae	<i>Salix bebbiana</i>	Bebb's willow	1	3	3	4	11	L4	p						
Salicaceae	<i>Salix discolor</i>	pussy willow	1	3	4	3	11	L4	p	n					
Salicaceae	<i>Salix eriocephala</i>	narrow heart-leaved willow	1	1	3	1	6	L5	n	n	n	n			n
Salicaceae	<i>Salix interior</i>	sandbar willow	1	1	5	2	9	L5	n	n		n			n
Salicaceae	<i>Salix nigra</i>	black willow	3	2	5	4	14	L3	n	n					n
Salicaceae	<i>Salix petiolaris</i>	slender willow	2	3	5	3	13	L4	n						
Salicaceae	<i>Salix purpurea</i>	purple-osier willow	2	ns	ns	ns	2	L+	n						
Salicaceae	<i>Salix x fragilis</i>	crack willow	1	ns	ns	ns	1	L+	n	n	n	n			
Sapindaceae	<i>Acer ginnala</i>	Amur maple	2	ns	ns	ns	2	L+	n						
Sapindaceae	<i>Acer negundo</i>	Manitoba maple	1	ns	ns	ns	1	L+?	n	n	n	n	n		n
Sapindaceae	<i>Acer nigrum</i>	black maple	2	3	4	2	11	L4	n	n	n	n	n	n	n
Sapindaceae	<i>Acer platanoides</i>	Norway maple	1	ns	ns	ns	1	L+	prn	prn					
Sapindaceae	<i>Acer rubrum</i>	red maple	1	4	1	5	11	L4	n	n	n				n
Sapindaceae	<i>Acer saccharinum</i>	silver maple	1	2	5	3	11	L4	pn	p					
Sapindaceae	<i>Acer saccharum</i>	sugar maple	1	3	0	2	6	L5	n	n	n	n	n	n	n
Sapindaceae	<i>Acer spicatum</i>	mountain maple	2	3	4	4	13	L4	n	n	n	n		n	n
Sapindaceae	<i>Aesculus glabra</i>	Ohio buckeye	3	ns	ns	ns	3	L+	pr						
Sapindaceae	<i>Aesculus hippocastanum</i>	horse-chestnut	1	ns	ns	ns	1	L+	n						
Saxifragaceae	<i>Chrysosplenium americanum</i>	golden saxifrage	3	3	5	4	15	L3		n	n				
Saxifragaceae	<i>Mitella diphylla</i>	mitrewort	2	3	4	5	14	L3	n	n	n			n	n
Saxifragaceae	<i>Tiarella cordifolia</i>	foam-flower	1	3	3	4	11	L4	n	n	n		n	n	n
Scrophulariaceae	<i>Scrophularia nodosa</i>	European figwort	4	ns	ns	ns	4	L+	n	n					ncf
Scrophulariaceae	<i>Verbascum thapsus</i>	common mullein	1	ns	ns	ns	1	L+	n	n	n	n	n		
Smilacaceae	<i>Smilax herbacea</i>	carriion-flower	1	3	2	2	8	L5	n (iNat)	n	n	n			
Smilacaceae	<i>Smilax tamnoides</i>	bristly greenbrier	2	3	3	3	11	L4	n			n	n		n
Solanaceae	<i>Nicotiana longiflora</i>	long-leaved tobacco	5	ns	ns	ns	5	L+							n
Solanaceae	<i>Physalis heterophylla</i>	clammy ground-cherry	2	2	3	3	10	L5	n	n					
Solanaceae	<i>Solanum dulcamara</i>	bittersweet nightshade	1	ns	ns	ns	1	L+	n	n	n	n	n		n
Taxaceae	<i>Taxus cuspidata</i>	Japanese yew	2	ns	ns	ns	2	L+	n						
Thelypteridaceae	<i>Thelypteris palustris</i> var. <i>pubescens</i>	marsh fern	1	4	2	4	11	L4			n				
Typhaceae	<i>Sparganium emersum</i>	green-fruited bur-reed	2	3	5	4	14	L3	n	n	n				
Typhaceae	<i>Sparganium eurycarpum</i>	great bur-reed	2	4	5	4	15	L3	pr						
Typhaceae	<i>Typha angustifolia</i>	narrow-leaved cattail	1	ns	ns	ns	1	L+	n	n		n	n		
Typhaceae	<i>Typha latifolia</i>	broad-leaved cattail	1	4	4	4	13	L4	n	n	n	n			n
Typhaceae	<i>Typha x glauca</i>	hybrid cattail	1	ns	ns	ns	1	L+	n	n	n				
Ulmaceae	<i>Ulmus americana</i>	white elm	1	4	0	2	7	L5	n	n	n	n		n	n
Ulmaceae	<i>Ulmus glabra</i>	Scotch elm	2	ns	ns	ns	2	L+	n						
Ulmaceae	<i>Ulmus pumila</i>	Siberian elm	1	ns	ns	ns	1	L+	n						
Ulmaceae	<i>Ulmus thomasii</i>	rock elm	4	4	4	3	15	L3				n			
Urticaceae	<i>Boehmeria cylindrica</i>	false nettle	2	4	3	2	11	L4	n	n	n	n			
Urticaceae	<i>Laportea canadensis</i>	wood nettle	1	3	2	2	8	L5	n	n	n	n	n		n
Urticaceae	<i>Pilea pumila</i>	dwarf clearweed	1	2	0	1	4	L5	n	n	n		n		n
Urticaceae	<i>Urtica gracilis</i> ssp. <i>gracilis</i>	American stinging nettle	1	3	1	2	7	L5	n	n					n
Verbenaceae	<i>Verbena hastata</i>	blue vervain	1	2	4	2	9	L5	n	n	n	n	n		n
Verbenaceae	<i>Verbena urticifolia</i>	white vervain	1	2	2	2	7	L5	n	n		n	n		n
Violaceae	<i>Viola affinis</i>	Le Conte's violet	2	4	4	3	13	L4	n			n			
Violaceae	<i>Viola blanda</i>	sweet white violet	3	4	4	5	16	L3				n		n	
Violaceae	<i>Viola canadensis</i>	Canada violet	2	4	4	4	14	L3	n		n			n	
Violaceae	<i>Viola cucullata</i>	marsh blue violet	2	3	2	4	11	L4	n		n				
Violaceae	<i>Viola labradorica</i>	dog violet	1	2	0	2	5	L5	n	n	n	n		n	n
Violaceae	<i>Viola pubescens</i>	stemmed yellow violet (sensu lato)	1	3	1	2	7	L5		n	n	n		n	n
Violaceae	<i>Viola pubescens</i> var. <i>scabriuscula</i>	smooth yellow violet	2	4	1	2	9	L5	n						

Appendix 2: Flora Species at Boyd Conservation Area (1981-2021)

Family	Scientific Name	Common Name	LO 1-5	PT 1-5	HD 0-5	StD 0-5	TS 2-20	Rank TRCA (Jun-21)	2021 TRCA	2005 TRCA	2002 Gartner-Lee	1998 MNRF	1993 MNRF	1983 MNRF	1981 TRCA
Violaceae	<i>Viola rostrata</i>	long-spurred violet	3	4	4	4	15	L3				n		n	
Violaceae	<i>Viola selkirkii</i>	Selkirk's violet	3	3	4	4	14	L3	n	n		n		n	
Violaceae	<i>Viola sororia</i>	common blue violet	1	2	0	2	5	L5	n	n	n	n		n	n
Vitaceae	<i>Parthenocissus vitacea</i>	thicket creeper	1	2	0	1	4	L5	n	n	n	n	n		ncf
Vitaceae	<i>Vitis riparia</i>	riverbank grape	1	1	0	0	2	L5	n	n	n	n	n		n
Woodsiaceae	<i>Athyrium filix-femina</i> var. <i>angustum</i>	northeastern lady fern	1	3	1	3	8	L5	n	n	n	n		n	n
Woodsiaceae	<i>Cystopteris bulbifera</i>	bulblet fern	2	3	4	4	13	L4	n	n	n	n	n	n	n
Woodsiaceae	<i>Cystopteris tenuis</i>	Mackay's fragile fern	2	4	5	5	16	L3		n					n
Woodsiaceae	<i>Gymnocarpium dryopteris</i>	oak fern	2	3	5	5	15	L3	n	n				n	n
Woodsiaceae	<i>Homalosorus pycnocarpus</i>	glade fern	4	4	5	5	18	L2	n	n	n				
Xanthorrhoeaceae	<i>Hemerocallis fulva</i>	orange day-lily	1	ns	ns	ns	1	L+	pr	n		n			
<p><b>LEGEND</b></p> <p><b>L-rank: TRCA local rank (assigned June 2021)</b>  L1-L3: species of regional conservation concern  L4: species of conservation concern in urban area  L5: species not of conservation concern at this time  LX: species is extirpated from TRCA  L+: introduced species, not native to TRCA  L+?: species is likely introduced to TRCA  LU: presence of species in TRCA unverified/unknown</p> <p><b>Site Status</b>  n: natural population  p: planted only  pr: regenerating but of planted origin  pn: both natural origin and planted  prm: natural and planted-regenerating  cf: identification not certain  e: extirpated from site</p> <p><b>Scoring criteria (basis of L-rank)</b>  LO: Local Occurrence  PT: Population Trend  HD: Habitat Dependence  StD: Sensitivity to Development  TS: Total Score  ns: criterion not scored</p>															

Appendix 3: Fauna Species at Boyd Conservation Area (2021 and historic)

Survey Species: species for which the TRCA protocol effectively surveys.																
Common Name	Scientific Name	Code	number of territories pre-2012 (max breeding status)	number of territories in period 2012-2021 inclusive	number of territories in 2016 (max breeding status)	number of territories in 2021 (max breeding status)	LO	PTn	PTt	AS	PIS	StD	HD	+	TS	L-Rank
<b>Birds</b>																
Ovenbird	<i>Seiurus aurocapillus</i>	OVEN	2(PR)	1			0	2	2	4	2	5	4	1	20	L2
Ruffed Grouse	<i>Bonasa umbellus</i>	RUGR	1(PO)				2	2	2	3	3	5	2	1	20	L2
American Woodcock	<i>Scolopax minor</i>	AMWO	2(PR)				0	2	3	3	2	4	2	0	16	L3
Bank Swallow	<i>Riparia riparia</i>	BANS		30+(CO)			0	5	2	1	1	3	3	0	15	L3
Black-throated Green Warbler	<i>Setophaga virens</i>	BTNW		2	1(PO)	1(PO)	1	1	2	3	1	4	3	0	15	L3
Brown Creeper	<i>Certhia americana</i>	BRCR	1(PR)	2	1(PR)		1	2	2	3	2	4	2	0	16	L3
Eastern Screech-Owl	<i>Megascops asio</i>	EASO	1(CO)				1	2	3	1	2	3	3	0	15	L3
Hooded Merganser	<i>Lophodytes cucullatus</i>	HOME		1(CO)			1	2	1	4	2	3	2	0	15	L3
Mourning Warbler	<i>Geothlypis philadelphia</i>	MOWA	3(PR)	3	2(PR)	3(PR)	0	4	2	2	2	4	2	0	16	L3
Pileated Woodpecker	<i>Dryocopus pileatus</i>	PIWO	1(PR)	2	1(PO)	1(PR)	0	2	2	4	1	3	3	0	15	L3
Scarlet Tanager	<i>Piranga olivacea</i>	SCTA	2(PR)	3	1(PO)	2(PR)	1	3	3	4	1	4	3	0	19	L3
Sharp-shinned Hawk	<i>Accipiter striatus</i>	SSHA	1(PR)				2	2	3	4	1	3	3	0	18	L3
Winter Wren	<i>Troglodytes hiemalis</i>	WIWR	1(PR)	2	1(PR)		0	1	1	3	2	5	3	1	16	L3
Wood Thrush	<i>Hylocichla mustelina</i>	WOTH	5(PR)	14	7(PR)	7(CO)	0	4	2	3	2	4	2	0	17	L3
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	YBCU		1		1(PR)	1	4	2	3	1	3	3	0	17	L3
American Redstart	<i>Setophaga ruticilla</i>	AMRE	1(PR)	5	2(PR)	3(PR)	0	3	1	3	1	4	2	0	14	L4
Belted Kingfisher	<i>Ceryle alcyon</i>	BEKI		2	2(PO)	1(PR)	0	3	1	2	1	2	2	0	11	L4
Common Yellowthroat	<i>Geothlypis trichas</i>	COYE	2(PR)	8	6(PR)	5(PR)	0	4	2	1	2	4	1	0	14	L4
Eastern Kingbird	<i>Tyrannus tyrannus</i>	EAKI	2(PR)	4	2(PR)	3(PR)	0	4	2	2	1	3	1	0	13	L4
Eastern Wood-Pewee	<i>Contopus virens</i>	EAWP	4(PR)	21	11(PR)	16(PR)	0	4	2	2	1	3	1	0	13	L4
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	GCFL	3(PR)	8	6(PR)	3(PR)	0	2	1	3	1	2	2	0	11	L4
Great Horned Owl	<i>Bubo virginianus</i>	GHOW	1(CO)	1	1(PO)	1(CO)	0	2	1	2	2	2	1	0	10	L4
Green Heron	<i>Butorides virescens</i>	GRHE	1(PO)				0	3	2	2	1	4	2	0	14	L4
Grey Catbird	<i>Dumetella carolinensis</i>	GRCA	9(PR)	23	13(PR)	14(PR)	0	2	2	1	1	3	1	0	10	L4
Hairy Woodpecker	<i>Picoides villosus</i>	HAWO	4(PR)	6	4 (PR)	6(CO)	0	2	1	3	1	2	2	0	11	L4
Indigo Bunting	<i>Passerina cyanea</i>	INBU	11(PR)	16	3(PO)	14(CO)	0	3	2	1	1	4	2	0	13	L4
Northern Flicker	<i>Colaptes auratus</i>	NOFL	2(PO)	6	5(PO)	2(CO)	0	4	2	1	1	3	2	0	13	L4
Northern Rough-winged Swallow	<i>Stelgidoptery x serripennis</i>	NRWS		2	2(CO)	1(PO)	0	3	1	1	1	2	3	0	11	L4
Pine Warbler	<i>Setophaga pinus</i>	PIWA	11(PR)	19	12(PR)	12(PR)	0	1	2	4	1	3	3	0	14	L4
Red-eyed Vireo	<i>Vireo olivaceus</i>	REVI	22(PR)	38	24(PR)	29(PR)	0	1	2	2	1	3	1	0	10	L4
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	RTHU		3	3(PR)	1(PO)	0	2	1	1	1	3	2	0	10	L4
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	RBGR	4(PR)	9	4(PO)	7(CO)	0	3	2	3	1	3	2	0	14	L4
Spotted Sandpiper	<i>Actitis macularius</i>	SPSA	1(PO)	2	1(PO)	1(PO)	0	3	2	1	2	4	1	0	13	L4
Tree Swallow	<i>Tachycineta bicolor</i>	TRES		1	1(PO)		0	4	2	1	1	2	2	0	12	L4
White-breasted Nuthatch	<i>Sitta carolinensis</i>	WBNU	4(PR)	7	4(PR)	7(CO)	0	2	2	3	1	2	2	0	12	L4
Wood Duck	<i>Aix sponsa</i>	WODU	2(PR)	3(CO)	1(PO)		0	2	2	3	2	3	2	0	14	L4
American Crow	<i>Corvus brachyrhynchos</i>	AMCR		x	x(PR)	x(PR)	0	2	1	1	1	0	0	0	5	L5
American Goldfinch	<i>Spinus tristis</i>	AMGO		x	x(PR)	x(PR)	0	3	1	1	1	1	0	0	7	L5

Appendix 3: Fauna Species at Boyd Conservation Area (2021 and historic)

Common Name	Scientific Name	Code	number of territories pre-2012 (max breeding status)	number of territories in period 2012-2021 inclusive	number of territories in 2016 (max breeding status)	number of territories in 2021 (max breeding status)	LO	PTn	PTt	AS	PIS	StD	HD	+	TS	L-Rank
American Robin	<i>Turdus migratorius</i>	AMRO		x	x(PR)	x(CO)	0	1	1	1	1	1	0	0	5	L5
Baltimore Oriole	<i>Icterus galbula</i>	BAOR		x	x(PR)	x(PR)	0	4	1	1	1	1	0	0	8	L5
Black-capped Chickadee	<i>Parus atricapillus</i>	BCCH		x	x(PR)	x(PR)	0	1	1	1	1	1	0	0	5	L5
Blue Jay	<i>Cyanocitta cristata</i>	BLJA		x	x(PR)	x(PR)	0	3	1	1	1	1	0	0	7	L5
Brown-headed Cowbird	<i>Molothrus ater</i>	BHCO		x	x(PR)	x(CO)	0	3	1	1	1	1	0	0	7	L5
Cedar Waxwing	<i>Bombycilla cedrorum</i>	CEDW		x	x(PR)	x(PR)	0	2	1	1	1	1	0	0	6	L5
Chipping Sparrow	<i>Spizella passerina</i>	CHSP		x	x(PO)	x(CO)	0	3	1	1	1	2	0	0	8	L5
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	CLSW	3(CO)	2	x(CO)		0	1	1	1	1	1	2	0	7	L5
Common Grackle	<i>Quiscalus quiscula</i>	COGR		x	x(CO)	x(PR)	0	4	1	1	1	1	0	0	8	L5
Downy Woodpecker	<i>Picoides pubescens</i>	DOWO		x	x(PR)	x(PR)	0	2	1	1	1	1	1	0	7	L5
Eastern Phoebe	<i>Sayornis phoebe</i>	EAPH	5(PR)	4	4(CO)	x(PR)	0	1	2	1	1	1	2	0	8	L5
House Wren	<i>Troglodytes aedon</i>	HOWR		x	x(PR)	x(PR)	0	1	1	1	2	1	1	0	7	L5
Mallard	<i>Anas platyrhynchos</i>	MALL		x	x(PO)		0	1	1	1	2	1	0	0	6	L5
Mourning Dove	<i>Zenaidura macroura</i>	MODO		x	x(PO)	x(PR)	0	3	1	1	1	0	0	0	6	L5
Northern Cardinal	<i>Cardinalis cardinalis</i>	NOCA		x	x(PR)	x(PR)	0	1	1	1	1	2	1	0	7	L5
Orchard Oriole	<i>Icterus spurius</i>	OROR		2	2(PR)	1(PR)	0	3	1	1	1	1	0	0	7	L5
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	RBWO		x(CO)	2(PO)	x(PR)	0	1	0	3	1	2	2	0	9	L5
Red-breasted Nuthatch	<i>Sitta canadensis</i>	RBNU	6(PR)	9	5(CO)	6(PR)	0	1	1	3	1	2	1	0	9	L5
Red-tailed Hawk	<i>Buteo jamaicensis</i>	RTHA		x	x(PO)		0	2	1	2	1	1	1	0	8	L5
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	RWBL		x	x(PO)	x(PR)	0	3	1	1	1	1	0	0	7	L5
Song Sparrow	<i>Melospiza melodia</i>	SOSP		x	x(PR)	x(CO)	0	3	1	1	1	2	0	0	8	L5
Turkey Vulture	<i>Cathartes aura</i>	TUVU		1	x(PO)		0	1	1	1	1	1	2	0	7	L5
Warbling Vireo	<i>Vireo gilvus</i>	WAVI		x	x(PR)	x(PR)	0	1	1	1	1	2	1	0	7	L5
Yellow Warbler	<i>Setophaga petechia</i>	YEWA		x	x(PR)	x(PR)	0	3	2	1	1	2	0	0	9	L5
European Starling	<i>Sturnus vulgaris</i>	EUST		x	x(PR)	x(CO)	0	4								L+

**Herpetofauna**

Grey Treefrog	<i>Hyla versicolor</i>	TGTF	5(PR)				0	3	2	3	4	5	2	1	20	L2
Spring Peeper	<i>Pseudacris crucifer crucifer</i>	SPPE	7(PR)	4	4(PR)	1(PR)	0	2	2	3	4	5	3	1	20	L2
Wood Frog	<i>Lithobates sylvatica</i>	WOFR	7(PR)	4(CO)	4(PR)	1(PR)	0	2	2	3	4	5	3	1	20	L2
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>	RBSA	2(PR)	4	2(PR)	2(PR)	0	2	1	1	4	4	3	0	15	L3
Northern Leopard Frog	<i>Lithobates pipiens</i>	LEFR	2(PR)				0	3	2	1	4	5	2	1	18	L3
American Toad	<i>Anaxyrus americanus</i>	AMTO	6(PR)	2	1(PR)	1(PR)	0	3	2	1	4	4	0	0	14	L4
Green Frog	<i>Lithobates clamitans</i>	GRFR	7(CO)	4	2(PR)	2(PR)	0	2	2	1	3	4	1	0	13	L4

**Incidental Species: species that are reported on as incidental to the TRCA protocol.**

**Mammals**

North American Beaver	<i>Castor canadensis</i>	BEAV	2(PR)	1		1(PR)	0	2	1	2	3	3	1	0	12	L4
Big Brown Bat	<i>Eptesicus fuscus</i>	BBBA		1		x(PR)										L4
Eastern Chipmunk	<i>Tamias striatus</i>	EACH	x(PR)	x	x(PR)	x(PR)	0	2	1	2	3	3	1	0	12	L4

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Eastern Cottontail	<i>Sylvilagus floridanus</i>	EACO	x(PR)	x		x(PR)	0	2	1	1	3	2	1	0	10	L4
Hoary Bat	<i>Lasiurus cinereus</i>	HOPA				x(PR)										L4
American Mink	<i>Mustela vison</i>	MINK	2(PR)				0	2	1	3	3	3	0	0	12	L4
Muskrat	<i>Ondatra zibethicus</i>	MUSK				1(PR)	0	2	1	1	3	3	1	0	11	L4
American Red Squirrel	<i>Tamiasciurus hudsonicus</i>	RESQ	2(PR)	3	2(PR)	2(PR)	0	2	1	1	3	2	1	0	10	L4
White-tailed Deer	<i>Odocoileus virginianus</i>	WTDE	x(PR)	x	x(PR)	x(PR)	0	2	2	3	2	1	2	0	12	L4
Coyote	<i>Canis latrans</i>	COYO		x(PR)			0	2	1	1	3	2	0	0	9	L5
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	GRSQ		x	x(PR)	x(PR)	0	2	1	1	3	0	0	0	7	L5
Meadow Vole	<i>Microtus pennsylvanicus</i>	MEVO		x	x(PR)		0	2	1	1	2	2	1	0	9	L5
Common Raccoon	<i>Procyon lotor</i>	RACC		x	x(PR)		0	2	1	1	3	0	1	0	8	L5
Striped Skunk	<i>Mephitis mephitis</i>	STSK		x	x(PR)	x(PR)	0	2	1	1	3	0	0	0	7	L5
<b>Herpetofauna</b>																
Jefferson Salamander complex	<i>Ambystoma jeffersonianum</i> complex	JESA	1(PR)				4	3	2	3	5	5	5	3	30	L1
Spotted Salamander	<i>Ambystoma maculatum</i>	YSSA	3(PR)	2	1(PR)		3	3	2	3	5	5	4	2	27	L1
Red-spotted Newt	<i>Notophthalmus viridescens</i>	EANE	2(PR)	2			2	2	2	3	4	5	3	1	22	L2
Snapping Turtle	<i>Chelydra serpentina serpentina</i>	SNTU		1		1(CO)	0	3	1	1	5	5	2	2	19	L3
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	MPTU		1(PR)		1(PR)	0	2	1	1	5	4	1	1	15	L3
Dekay's Brownsnake	<i>Storeria dekayi</i>	BRSN		1			1	2	2	1	3	4	0	0	13	L4
Eastern Gartersnake	<i>Thamnophis sirtalis sirtalis</i>	EAGA		1(PR)		2(PR)	0	2	1	1	3	3	0	0	10	L4
<b>Invertebrates</b>																
Digger Crayfish	<i>Fallicambarus fodiens</i>	CHCR	10(PR)	2(PR)		2(PR)	1	3	2	1	4	5	2	1	19	L3

**LEGEND**

- LO = local occurrence
- PTn = National population trend
- PTt = TRCA population trend
- AS = area sensitivity
- PIS = Patch Isolation Sensitivity
- PO = possibly breeding
- PR = probably breeding
- CO = confirmed breeding
- L1 = Species of Regional Conservation Concern, regionally scarce due to either accidental occurrence or extreme sensitivity to human impacts
- L2 = Species of Regional Conservation Concern, somewhat more abundant and generally slightly less sensitive than L1 species
- L3 = Species of Regional Conservation Concern, generally less sensitive and more abundant than L1 and L2 ranked species
- L4 = Species of Urban Concern; occur throughout the region but could show declines if urban impacts are not mitigated effectively
- L5 = species that are considered secure throughout the region
- L+ = introduced species, not native to the Toronto region
- STD = sensitivity to development
- HD = habitat dependence
- + = additional points
- TS = total score
- L-rank = TRCA Rank, March, 2021 - based on data up to 2020 inclusive

Records from iNaturalist indicated by yellow highlight.