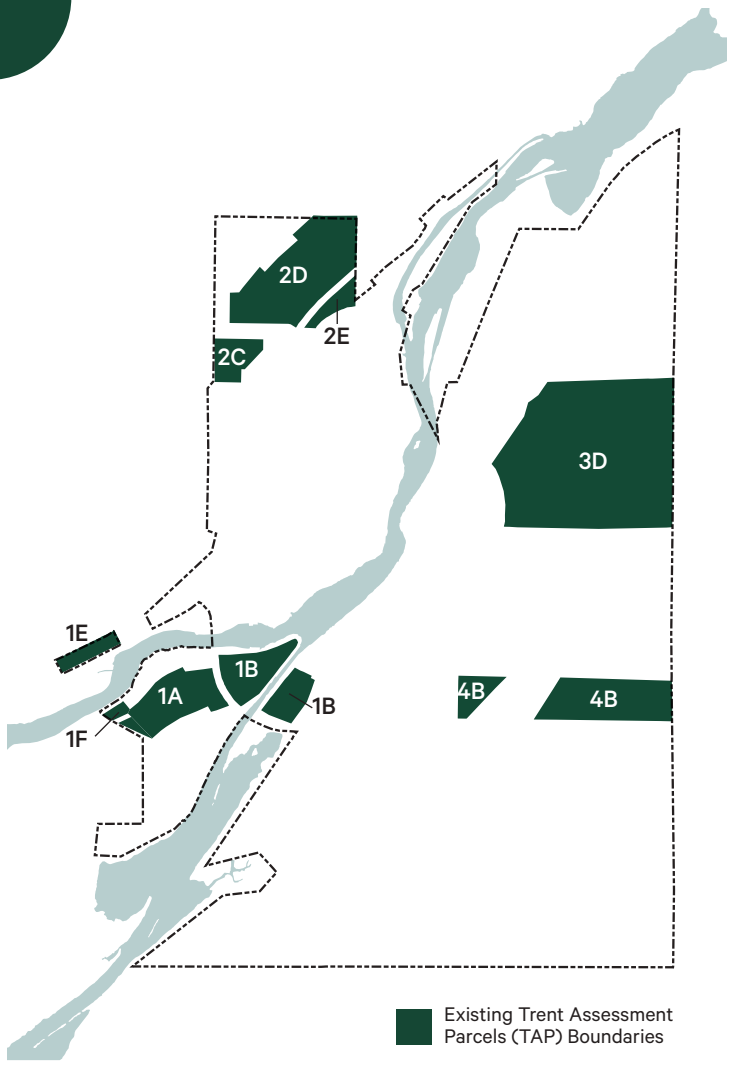
Appendix A:
Trent Assessment Parcel (TAP) Summary Sheets

A. Trent Assessment Parcel (TAP) Summary Sheets

To facilitate review and consideration of each TAP individually, summary sheets containing a general description (location, physiography, land use & site condition), surveys completed, an overview of natural heritage survey result, and a summary of preliminary assessment outcomes have been prepared. Each summary sheet provides an overview of work completed through Phase 1 and was used to inform Phase 2 of the Trent Lands and Nature Areas Plan.

The Summary Sheets were developed based on existing TAP boundaries as these represent the boundaries used in the assessment process. Exploration of potential revision to TAP boundaries are considered through Phase 2 of the Trent Lands and Nature Areas Plan process, as appropriate.



Acronyms

TAP	Trent Assessment Parcel
ITK/TK	Indigenous Traditional Knowledge/ Traditional Knowledge
ELC	Ecological Land Classification
PSW	Provincially Significant Wetlands
SWH	Significant Wildlife Habitat
SAR	Species at Risk
SCC	Species of Conservation Concern
TNA	Trent Nature Area

Assessment Parcel: **1A**

General Description

Size: ~7 ha

Assessed: 2018-2019

Location: Located at the corner of Nassau Mills Road and Armour Road. The TAP is bounded by Parcel 1F to the southwest and 1B to the northeast (north side of Nassau Mills Road).

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature as agricultural practices (either use as pasture lands or as farmland) was active on this parcel in the past 50-100 years. It appears (from historical imagery) a building (probably associated with the former CN Rail Line) existed between 1929 and 1964; in 1964 the footprint of a burned structure appears while in 1929 no structure is apparent. With the establishment of a building, a hedgerow of coniferous trees (and likely other vegetation) was planted. The ash remains of a building are still apparent on-site and the area directly affected remains depauperate.

A drumlin is located to the southeast of the TAP; the drumlin is generally north-south oriented with the base of the westerly-northwesterly slope approximately coincident with the limit of TAP 1A and sloping to the east towards the Otonabee River. The limit of the drumlin landform generally defines the shoreline of the Otonabee in this area.

Current Land Use(s) & Site Condition

The Rotary Greenway Trail (former CN Rail Line) runs through the site. There is no known research or teaching activities that occur on this TAP.
The overall condition of this site is poor. This site is very cultural (little vegetation community structure and diversity, high percentage of non-natives, dominant presence of highly invasive plants) and has many anthropogenic disturbances (the remains of a burned building, site of the old rail line, formal and informal trails). The recovery of this area to remnant conditions will not occur.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Bat acoustic monitoring
Mammal tracking surveys (Winter)
Owl callback surveys

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 93

Total non-native plant species: 38

FQI: 20.98 (low value)

Native mean coefficient: 3.16 (low value)

Notes:

Significant population of Dog-Strangling Vine (Vincetoxicum rossicum) in 1A, where the species dominates the entire area and few other species can be found, this population has killed the Staghorn Sumac (Rhus typhina) thicket that once occurred. Other highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include European Buckthorn (Rhamnus cathartica) and honeysuckles (Tartarian Honeysuckle [Lonicera tatarica] and Bell's Honeysuckle [Lonicera x bella]).

Four vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Scots Pine Coniferous Plantation Type (CUP3-3)
- Cultural Plantation (CUP)
- Mineral Cultural Meadow/Cultural Thicket (CUM1/CUT1)
- Mineral Cultural Woodland (CUW1)

Each community is generally described below:

1 Scots Pine Coniferous Plantation Type (CUP3-3)


Scots Pine


European Buckthorn


White Ash


Tartarian Honeysuckle


Chokecherry


Virginia Creeper


Riverbank Grape

Two of these communities exist on-site; one on each side of the hydro corridor. The canopy (10-25m in height; ≥60% cover) of both communities is Scots Pine (Pinus sylvestris) dominated. The subcanopy (2-10m in height; 35-60% cover) is European Buckthorn (Rhamnus cathartica) and White Ash (Fraxinus americana); White Ash is less abundant in the north community. The understory (1-2m in height; 35-60% cover) is dominated by European Buckthorn, Tartarian Honeysuckle (Lonicera tatarica), and to a lesser extent Chokecherry (Prunus virginiana). The ground layer (<1m in height; 10-25% cover) is European Buckthorn seedlings, Virginia Creeper (Parthenocissus inserta), and Riverbank Grape (Vitis riparia).

Vegetation & Vegetation Communities

2 Cultural Plantation (CUP)


Scots Pine


Trembling Aspen


Tamarack


European Buckthorn


White Ash


Common Lilac


Tartarian Honeysuckle


Chokecherry


Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)

It appears (from historical imagery, Figure 10) a building existed between 1929 and 1964; in 1964 the footprint of a burned structure appears while in 1929 no structure is apparent. With the establishment of a building, it appears a hedgerow of coniferous trees (and likely other vegetation) was planted. The ash remains of a building are still very apparent on-site and the area directly affected remains bare.

Scots Pine dominates the canopy (>25m in height; 35-60% cover) with Trembling Aspen (Populus tremuloides) and Tamarack (Larix laricina) associates. The subcanopy (2-10m in height; 25-35% cover) is Trembling Aspen, Scots Pine, European Buckthorn, and White Ash. The understory (1-2m in height; 35-60% cover) is European Buckthorn, Common Lilac (Syringa vulgaris), Tartarian Honeysuckle, and Chokecherry. The ground layer (<1m in height; 25-35% cover) is European Buckthorn seedlings and Aster species (Symphyotrichum sp.); Heart-leaved Aster (Symphyotrichum cordifolium), White Heath Aster (Symphyotrichum ericoides), Calico Aster (Symphyotrichum lateriflorum), New England Aster (Symphyotrichum novae-angliae), and Old Field Aster (Symphyotrichum pilosum).

Vegetation & Vegetation Communities

3 Mineral Cultural Meadow/Cultural Thicket (CUM1/CUT1)


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover


Aster

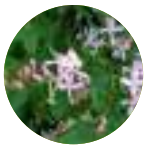

Canada Goldenrod


European Buckthorn


Staghorn Sumac


European Swallowwort


White Ash


Tartarian Honeysuckle


Common Lilac


Common Apple

Cultural meadow occurs across the site, and cultural meadow species dominate even in areas that have more shrub coverage; shrub coverage is patchy and occurs in pockets that are 0.1 to 0.5 ha in size. Therefore cultural meadow and thicket are combined in this ELC polygon.

The cultural meadow is comprised of old-field species (e.g., perennial grasses, heaths, and herbaceous plants); Common Timothy (Phleum pratense), Orchard Grass (Dactylis glomerata), Smooth Brome (Bromus inermis), Wild Carrot (Daucus carota), Tufted Vetch (Vicia cracca), Red Clover (Trifolium pratense), Aster species (New England Aster, Old Field Aster, etc.) and Canada Goldenrod (Solidago canadensis). These old field species comprise the understory and ground layer (<1m in height; ≥60% coverage).

North of the Rotary Greenway Trail the community canopy (2-4 m in height) is occasionally dominated by European Buckthorn or Staghorn Sumac (Rhus typhina). European Swallowwort (Vincetoxicum rossicum), commonly called Dog-strangling Vine, has spread to this community and is starting to dominate areas.

South of the Rotary Greenway Trail two pockets of thicket occur. The thicket closer to Nassau Mills Road has an emergent layer (5-10m in height) of dead and dying White Ash above a canopy (2-4m in height) comprised of Staghorn Sumac, European Buckthorn, Tartarian Honeysuckle, and Common Lilac. The shrubs become less dense in concentration towards the southwest where it is apparent that Dog-strangling Vine has dominated and out-competed shrubs. In this area, Dog-strangling Vine is the sole vegetation. Continuing southwest a thicket of European Buckthorn, Tartarian Honeysuckle, Common Apple (Malus pumila), and Common Lilac occurs.

4 Mineral Cultural Woodland (CUW1)


White Pine


Sugar Maple


White Ash


Trembling Aspen


European Buckthorn


White Spruce

This community occurs in the southern corner of 1A. The cultural woodland on-site is an extension of the cultural woodland that extends up the hill (drumlin) that boarders 1A. The cultural woodland is succeeding from the cultural meadow and thicket on 1A as well as the deciduous forest that occurs on the hill. On-site, this community's canopy (10-25 m in height; 35-60% cover) is a mix of White Pine (Pinus strobus), Sugar Maple (Acer saccharum), White Ash, and Trembling Aspen. The sub-canopy (2-10 m in height; 25-25% cover) is the same species with European Buckthorn, Tartarian Honeysuckle, Chokecherry, and White Spruce (Picea glauca). The understory (1-2 m in height; ≥60% cover) is the same cultural meadow found elsewhere in 1A.

This cultural woodland has a few native woodland plant species which are likely seeding in from uphill. It appears that this area is recovering from the earlier agricultural disturbance, and with time and management could partially be restored.

Wildlife

Birds

Number of species: 33

Species Assemblange: Species observed were mostly habitat-generalists found in large and small forests, wetlands and cultural communities in southern Ontario

Common species:


Song Sparrow

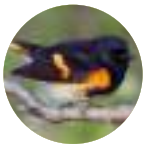

House Wren


American Goldfinch


Chipping Sparrow


Black-capped Chickadee

Area sensitive species:


American Redstart


Hairy Woodpecker


Pine Warbler

These woodland species are anticipated to use adjacent woodlands that provide suitable habitats and are not breeding on the TAP.

Mammals

Number of Species: 3

Species Assemblange: Species observed were predominantly common spieces found in and near urban and semi-urban areas

Common species:


Red Fox


Deer Mouse

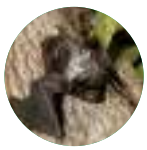

White-tailed Deer


Coyote

Possible coyote tracks were observed. Imperfect tracks and high volume of domestic dog prints prevent definitive confirmation.

Other species: No vegetation community / ecosite were identified as suitable as potential bat habitat (in accordance with MNRF protocols) within the boundaries of TAP 1A. Based on habitat conditions present, it is anticipated that foraging is the primary use; its proximity to the Otonabee and habitats present is anticipated to support prey species. TAP 1A is adjacent to SDNA, which contains candidate maternity roosting habitat.


Big Brown Bat


Silver-haired Bat


Eastern Red Bat


Hoary Bat


Tri-coloured Bat

Wildlife

Insects

Number of Species: 5

Species Assemblage: Insects were documented incidentally and observations are representative, not comprehensive. Those species observed are common in Ontario. Low diversity of native vegeation is expected to reduce overall native insect diversity.

Common species:

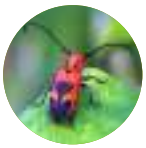
Dragonflies


Canadian Tiger Swallowtail butterfly


Black Saddlebags


Widow Skimmer


Cherry-faced Meadowhawk


Red Milkweed Beetles

Fish

Number of Species: N/A

Species Assemblage: No fish habitat located on the TAP; however the TAP is located in close proximity to the Otonabee River immediately upstream of Lock 22. The TAP is separated from the river by a narrow strip of land and Armour Road. The Otonabee River supports habitat for a broad range of fish.

Common species:


Large and Small Mouth Bass


Pan Fish


Carp


Walleye


Muskellunge

Indigenous Traditional Knowledge

No sites or areas were specifically identified within TAP 1A through ITK engagement sessions. An area of potential significance was identified in close proximity to the TAP. Eastern red cedar, Sweetgrass, Riverbank Grape, Woodland Strawberry, Climbing Bittersweet, Wild Tobacco, Ground-cherry, Great Mullein, Plantain species, Pussytoes species, and Ash and Oak tree species were identified as occurring in the parcel and were identified in TK for medicinal, sacred and / or resource purposes. The Otonabee River provides habitat for fish, turtles and geese; these species groups have sacred and/or resource uses in TK teachings and practices.

An area of potential significance to Indigenous Peoples was identified through knowledge sharing workshops and walks in close proximity to, but not located on, the TAP

Valued Traditional Knowledge Species:

Twelve (12) species / species groups were identified as occurring on the parcel through ITK workshops or sharing meetings (ITK section above). Additional species, identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program. The complete list of species with TK significance is provided below:


White Spruce


Eastern White Pine


Eastern White Cedar


Riverbank Grape


Wild Strawberry


White Elm


Bur Oak


Climbing Bittersweet


Staghorn Sumac

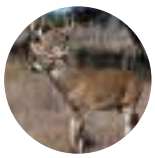

Ground-cherry species


White Ash


Common Plantain


Yarrow Species (Wolly, Common)


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)


White-tailed deer

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No wetlands occur on 1A. No wetlands are known to occur within 120m of TAP 1A.

Significant Wildlife Habitat (SWH)

Candidate SWH includes:

- Shrub / Early Successional Breeding Bird habitat

Habitats present are transitioning from cultural meadow to thicket communities. Presence of some indicator species in combination with transitional communities supports the need for assessment at future planning stages to assess the area as SWH.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

Bat acoustic recording captured three vocalizations from a Myotis species and one vocalizations from Tri-coloured bat; these species are listed as Endangered under ESA 2007 (Provincial). Tri-coloured bat and all myotis species (Little Brown Myotis, Eastern Small-footed Myotis, Northern Myotis) are federally listed as Endangered under SARA 2004. It is anticipated that bat species are using the site for foraging; potential suitable habitat for maternity roosting is present across the Symons Campus / Trent Lands.

One Species of Conservation Concern was identified adjacent to the TAP during field surveys (associated with SDNA): Eastern Wood-pewee (Special Concern; ESA 2007). As the species occurs within 120m of the TAP, it has been included in this summary and should be considered through future planning stages, as appropriate.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

The Otonabee River is a significant feature and area. It provides habitat for both resource and sacred species and provides movement corridors for many species. In addition to these, water is recognized for its signifance as the earths blood and critical to natural systems, plants, animals and people.

Summary of Constraints

Summary of Preliminary Constraints

The parcel contains candidate significant features (candidate SWH), which require further assessment to confirm or remove preliminary candidacy identified here. Habitat present and size indicate that this area requires further assessment to confirm constraints level. This area is identified as 'Pending Further Assessment'.

Assessment Parcel: **1B**

General Description

Size: ~5 ha

Assessed: 2018-2019

Location: The southern and eastern boundary for this parcel is Nassau Mills Road. The western boundary is the terminus of Armour Road and the northern boundary is the Trent-Severn Waterway. 1B is divided in two portions by the Trent-Severn Waterway/ Otonabee River.

Parcel 1A is located to the south, on the other side of Nassau Mills Road

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature as agricultural practices (either use as pasture lands or as farmland) was active on this parcel in the past 50-100 years. A CN Rail Line used to bisect the site; the rail line has subsequently been removed and an unpaved section of the Rotary Greenway Trail follows the former rail alignment.

Current Land Use(s) & Site Condition

The Rotary Greenway Trail continues through 1B with a pedestrian footbridge (called the Rotary Greenway Trail Peterborough Bridge). Informal trails occur throughout as well. There is an active weather station and a compost pile on site. No research or teaching sites or areas were identified on the TAP.

During 2018 and 2019 surveys Parks Canada construction of a Lock in the Otonabee River at Nassau Mills Road restricted access to the majority of the parcel. The construction footprint is approximately 1.7 ha (23%) of the parcel area and access to the east side was limited.
The overall condition of this site is poor. This site is very cultural (little vegetation community structure and diversity, high percentage of non-natives, dominant presence of highly invasive plants) and has many anthropogenic disturbances (Parks Canada Lock construction, compost site, weather station, site of the old rail line, formal and informal trails). The recovery of this area to remnant conditions will not occur

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Bat habitat and bat acoustic monitoring
Mammal tracking surveys (Winter)
Owl callback surveys

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 130

Total non-native plant species: 66

FQI: 20.38 (low value)

Native mean coefficient: 3.77 (low value)

Notes:

Highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include European Buckthorn (Rhamnus cathartica), Garlic Mustard (Alliaria petiolata), European Lily-of-the-valley (Convallaria majalis), honeysuckles (Tartarian Honeysuckle [Lonicera tatarica] and Bell's Honeysuckle [Lonicera x bella]), and Dog-strangling Vine (Vincetoxicum rossicum).

Three vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Mineral Cultural Meadow/Cultural Thicket (CUM1/CUT1)
- Mineral Cultural Woodland (CUW1)
- Dry-Fresh White Dear Mixed Forest Ecosite

Each community is generally described below:

1 Mineal Cultural Woodland/ Cultural Thicket (CUW1/CUT1)


Trembling Aspen


European Buckthorn


Paper Birch


Tartarian Honeysuckle


Chokecherry


Virginia Creeper


Garlic Mustard


Dog-strangling Vine


Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)

Cultural and early successional species dominate the canopy (10-25m in height) and sub-canopy (2-10m in height) of the wooded and thicket areas (determined by the tree vs shrub coverage; variable coverage across the site). Cultural meadow and invasive species dominate the understory (1-2m in height) and ground layer (<1m in height). Tree and shrub coverage are interspersed and occur in patches that are less than 0.5 ha in size; therefore, cultural woodland and thicket are combined in this ELC polygon.

On the west side of the canal are small patches of Trembling Aspen with some Paper Birch (Betula papyrifera) associates (10-25m in height). Uniformly across the community is European Buckthorn with some successional growth of Trembling Aspen and Eastern White Cedar (Thuja occidentalis). Tartarian Honeysuckle, hawthorns (Crataegus sp.) and dead ash are also found through the community. The understory of the cultural woodland/thicket is typically goldenrods and asters, Virginia Creeper, Chokecherry and European Buckthorn seedlings, Garlic Mustard (Alliaria petiolata), and Dog-strangling Vine.

On the east side of the canal, the CUW/CUT is similar apart from a higher dominance of Black Locust (Robinia pseudoacacia) in the canopy. Non-native herbaceous plants dominate the ground layer (<1m in height; 35-60% cover) more than on the west side, likely a result of the adjacent compost pile.

Vegetation & Vegetation Communities

2 Mineral Cultural Meadow (CUM1)


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover


Common Milkweed


European Buckthorn


Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)

Old-field species dominate the meadow (<1m in height; >60% cover) (e.g., perennial grasses, heaths, and herbaceous plants). Common Timothy, Orchard Grass, Smooth Brome, Wild Carrot, Tufted Vetch, Red Clover, Asters and Goldenrods dominate this community. Common Milkweed (Asclepias syriaca) and European Buckthorn is succeeding in. At the corner of Armour Road and Nassau Mills Road is a coniferous hedgerow (Eastern White Cedar and White Spruce) bordering the meadow. This unit shows displays early signs of succession.

3 Dry-Fresh White Cedar Mixed Forest Ecosite (FOM4)


Sugar Maple


Eastern White Cedar


American Basswood


Trembling Aspen


White Elm


White Pine


European Buckthorn

Sugar Maple and Eastern White Cedar dominate in the canopy (10-25m in height; >60% cover) with American Basswood (Tilia americana), Trembling Aspen, White Elm (Ulmus americana), and ash associates. The sub-canopy (2-10m in height; 35-60% cover) is Sugar Maple, ash, White Pine. The understory (1-2m in height; 10-25% cover) is European Buckthorn. Non-native herbaceous plants dominate the ground layer (<1m in height; 35-60% cover), likely a result of the adjacent compost pile.

Wildlife

Birds

Number of species: 29

Species Assemblange: Species observed were mostly habitat-generalist and a couple of edge/early successional species.

Common species:

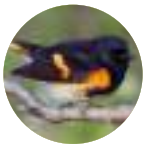

American Robin

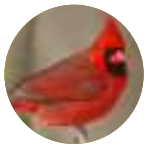

Yellow Warbler


American Goldfinch


Black-capped Chickadee

Edge/Early Sucesssional species:


American Redstart


Northern Cardinal

Mammals

Number of Species: 3

Species Assemblange: Species observed were predominantly common spieces found in and near urban and semi-urban areas

Common species:

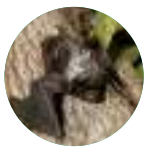

Red Fox


Deer Mouse


White-tailed Deer

Other species: One vegetation community / ecosite (FOM4) on TAP 1B was identified as suitable as potential bat habitat. Woodland ecosites suitable for supporting bat habitat are present in abundance within the Trent Lands; the area on TAP 1B represents a relatively small portion of available habitat and habitat quality is lower than areas available elsewhere The bat species recorded on the TAP are all determined to be common in Ontario


Big Brown Bat


Silver-haired Bat


Hoary Bat

Wildlife

Insects

Number of Species:

Species Assemblage: Insects were documented incidentally and observations are representative, not comprehensive. Those species observed are common in Ontario. Low diversity of native vegeation is expected to reduce overall native insect diversity.

Common species:

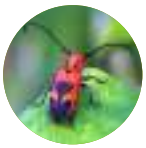
Dragonflies


Canadian Tiger Swallowtail butterfly


Black Saddlebags


Widow Skimmer


Cherry-faced Meadowhawk


Red Milkweed Beetles

Fish

Number of Species: N/A

Species Assemblage: No fish habitat located on the TAP; however the TAP is located in close proximity to the Otonabee River immediately upstream of Lock 22. The TAP is separated from the river by a narrow strip of land and Armour Road. The Otonabee River supports habitat for a broad range of fish.

Common species:


Large and Small Mouth Bass


Pan Fish


Carp


Walleye


Muskellunge

Indigenous Traditional Knowledge

No sites or areas were specifically identified within TAP 1B through ITK engagement sessions. Great Mullein and Pussytoes species were identified as occurring in the parcel and were identified in TK for medicinal, sacred and / or resource purposes. The Otonabee River provides habitat for fish, turtles and geese; these species groups have sacred and/or resource uses in TK teachings and practices.

Valued Traditional Knowledge Species:

Great Mullein and Pussytoes species were identified as occurring on the parcel through ITK workshops or sharing meetings. Additional species identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program. The complete list of species with TK significance is provided below:


White Spruce


Eastern White Pine


Eastern White Cedar


Riverbank Grape


Narrow-leaved Cattail


White Elm


Paper Birch


Climbing Bittersweet


Staghorn Sumac

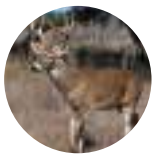

Ground-cherry species


White Ash


Common Plantain


Yarrow Species (Wolly, Common)


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)


White-tailed deer

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No wetlands occur on 1B. No wetlands are known to occur within 120m of TAP 1B. The Nassau Mills Wetland Complex occurs >250m from this TAP.

Significant Wildlife Habitat (SWH)

Candidate SWH includes:

- Bat Maternity Colonies
- Shrub / Early Successional Breeding Bird Habitat
- Special Concern and Rare Wildlife Species

The area of cultural meadow present on TAP1B shows early signs of succession. Due to its proximity to TAP1A and early evidence of succession, portions of the TAP are identified as candidate Shrub/Early Successional Breeding Bird Habitat. Assessment at future planning stages will refine this assessment and determine whether the site does or does not meet criteria for significance.supports the need for assessment at future planning stages to assess the area as SWH.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

Monarch Butterfly, listed as Special Concern under ESA 2007 (Provincial) and SARA 2004 (Federal), was observed on the parcel; common milkweed occurs on the parcel and is the host plant for this species.

Eastern Wood-pewee was observed at the edge of the assessment parcel (iNaturalist data, 2018, user basilconlin). Eastern Wood-pewee is listed as Special Concern under ESA 2007 (Provincial) and under SARA 2004 (Federal). No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

The Otonabee River is a significant feature and area. It provides habitat for both resource and sacred species and provides movement corridors for many species. In addition to these, water is recognized for its signifance as the earths blood and critical to natural systems, plants, animals and people.

Summary of Constraints

Summary of Preliminary Constraints

As described, 1B is divided in two portions by the Trent-Severn Waterway/ Otonabee River. There are no confirmed significant features on the TAP. Habitats present indicate that additional review is appropriate to confirm that SWH is not present and/or identify appropriate mitigation at the site-specific study level; however, based on early successional nature of the site and habitat quality they are identified as 'low / no constraints' for this preliminary assessment.

Assessment Parcel: **1E**

General Description

Size: ~2 ha

Assessed: 2018-2019

Location: Located along Water Street (eastern boundary), the north and south boundary is the commercial (Tim Hortons to the north and south is the Akash Superstore / gas bar). The western limit is residents along Champlain Drive. Directly across Water Street is a power substation and the Trent-Severn Waterway and constructed pond.

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature as agricultural practices (either use as pasture lands or as farmland) was active on this parcel in the past 50-100 years. The parcel is gently sloping from west to east, towards the Trent Severn Waterway with smaller topographical variation occurring on-site.

Current Land Use(s) & Site Condition

No sanctioned recreational land uses on-site. There are no known educational or research sites or areas on the TAP.
The overall condition of this site is poor. 1E has a recent agricultural history, contains a high percentage of non-natives, including many highly invasive species throughout. Encroachment from the residential lots occur along the western boundary of the TAP. It is unlikely that recovery to the original conditions will occur.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species:	66	**FQI:**	19.03 (low value)
Total non-native plant species:	28	**Native mean coefficient:**	3.31 (low value)

Notes:

Highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include European Buckthorn (Rhamnus cathartica), Dog-Strangling Vine (Vincetoxicum rossicum), Purple Loosestrife (Lythrum salicaria), and honeysuckles (Tartarian Honeysuckle [Lonicera tatarica] and Maack's Honeysuckle [Lonicera maackii]).

One vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Sumac Cultural Thicket Type (CUT1-1)

The community is generally described below:

1 Mineal Cultural Woodland/ Cultural Thicket (CUW1/CUT1)


Amur Maple


Norway Maple


English Oak


Austrian Pine


Staghorn Cumac


European Buckthorn


Common Apple


Riverbank Grape


Tall Golderod


Canada Goldenrod


Virginia Creeper


Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)


Spiked Sedge

In the emergent layer (10-25m in height; ≤10% cover) of this community is dead and dying White Ash and White Elm. Several species of horticultural trees are found on site such as Amur Maple (Acer tataricum subsp. ginnala), Norway Maple (Acer platanoides), English Oak (Quercus robur), and Austrian Pine (Pinus nigra). The canopy (2-10m in height; ≥60% cover) is Staghorn Sumac, European Buckthorn, and Common Apple. The sub-canopy (1-2m in height; 10-25% cover) is European Buckthorn, Staghorn Sumac, and Riverbank Grape. The understory (0.5-1m in height; 35-50% cover) is Tall Goldenrod (Solidago altissima), Canada Goldenrod, Calico Aster, New England Aster, Old Field Aster, and Arrow-leaved Aster (Symphyotrichum urophyllum). Ground layer (<0.5m in height; 35-60% cover) vegetation is Spiked Sedge (Carex spicata) and Virginia Creeper.

At the middle of the site (topographic low point) water pools and the area is domianted by European Buckthorn.

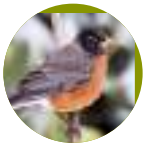
Wildlife

Birds

Number of species: 17

Species Assemblange: Species observed were often seen leaving the parcel to utilize habitat across Water Street..

Common species:


American Robin


Yellow Warbler


Eastern Kingbird


Red-winged Blackbird

Mammals

Number of Species: 1

Species Assemblange: A groundhog burrow was seen onsite during spring surveys. Other urban adapted species, such as Eastern Gray Squirrel, are likely to be utilizing the site.

Common species:


Groundhog


Eastern Gray Squirrel

Herptile

Number of Species: 1

Species Assemblange: During fall surveys a Northern Leopard Frog was observed on site. Northern Leopard Frogs transverse large distances after breeding in search of foraging grounds (old fields and meadows). It is possible the frog travelled from University Heights Park.

Common species:


Northern Leopard Frog

Wildlife

Fish

Number of Species: N/A

Species Assemblage: There is no direct or indirect fish habitat on the TAP. The TAP is separated from the Trent Severn Waterway by Water Street and intervening land uses. Drainage appears to be internal to the site and/or to be collected through on-road stormwater catchments. A stormwater pond located adjacent to the power substation may receive stormwater runoff from Water Street and ultimately outlet to the River.

Indigenous Traditional Knowledge

No sites, areas or species were specifically identified within TAP 1E through ITK engagement sessions.

Valued Traditional Knowledge Species:

Although no species were specifically identified through ITK workshops and walks on TAP 1E, species identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program, including:


White Oak


Riverbank Grape


Staghorn Sumac


Eastern Red Cedar


Wild Strawberry


White Elm


Yarrow Species (Wolly, Common)


White Ash


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No PSW occur on or within 120 m of TAP 1E. An unevaluated wetland is mapped south of the parcel, across Water Street, between the Trent Severn Waterway and the power substation / stormwater pond.

Significant Wildlife Habitat (SWH)

No Candidate SWH identified.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

No SAR (Endangered or Threatened species) were observed on TAP 1E.

No Species of Conservation Concern were identified on TAP 1E.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

No features or areas were identified on the parcel through ITK workshops or sharing meetings.

Summary of Constraints

Summary of Preliminary Constraints

The parcel does not contain any candidate or confirmed significant features and therefore has no known constraints based on policy.

Assessment Parcel: **1F**

General Description

Size: ~0.5 ha

Assessed: 2018-2019

Location: This small parcel is located between Armour Road (western boundary) and the Rotary Greenway Trail (Eastern Boundary). The north boundary is a cultural meadow/thicket that extends onto TAP 1A; the south boundary is 1334 Armour Road. Directly across Armour Road is the Trent-Severn Waterway.

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature as agricultural practices (either use as pasture lands or as farmland) was active on this parcel in the past 50-100 years. The houses along Armour road were built between 1929 and 1964. A drumlin is located to the east of the TAP; the drumlin is generally north-south oriented with the base of the westerly-northwesterly slope approximately coincident with the limit of TAP 1E and sloping to the east towards the Otonabee River. The limit of the drumlin landform generally defines the shoreline of the Otonabee in this area.

Current Land Use(s) & Site Condition

No sanctioned recreational land uses occur on site. No known educational or research sites or areas occur on site.

The overall condition of this site is poor. 1F has a recent agricultural history, a very high percentage of non-natives including many highly invasive species throughout. The adjacent TAP 1A is also in poor condition. It is unlikely that recovery to the original conditions will occur.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Mammal tracking surveys (Winter)
Owl callback surveys

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 35

Total non-native plant species: 16

FQI: 9.87(low value)

Native mean coefficient: 2.47(low value)

Notes:

No provincially or federally ranked, or at-risk flora species occur at this site. Highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include European Buckthorn (Rhamnus cathartica), Dog-Strangling Vine (Vincetoxicum rossicum), and Tartarian Honeysuckle (Lonicera tatarica).

Two vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Mineral Cultural Meadow (CUM)
- Hedgerow (HEDGE)

Each community is generally described below:

1 Mineral Cultural Meadow (CUM)


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover


Common Lilac


Eastern Red Cedar


Tall Golderod


European Buckthorn


Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)

The Cultural Meadow contains less than 25% woody (tree and shrub) cover. Old-field species dominate the meadow (<1m in height; >60% cover) (e.g., perennial grasses, heaths, and herbaceous plants). Common Timothy, Orchard Grass, Smooth Brome, Wild Carrot, Tufted Vetch, Red Clover, Asters and Goldenrods dominate this community. A few plants of Easter Red Cedar (Juniperus virginiana) and Common Lilac occurs, and European Buckthorn is succeeding in. Contiguous to TAP 1A, this area shows evidence of successional towards a shrub / thicket community.

Vegetation & Vegetation Communities

2 Hedgerow (HEDGE)


Scots Pine


White Pine


White Spruce

This hedgerow community appears to be from species planted to intentionally create a barrier; Scots Pine, White Pine, and White Spruce. As this area is not maintained or apart of a manicured feature, other species have succeeded in, and the tree species have spread. Old-field species (e.g., perennial grasses, heaths, and herbaceous plants) dominate the understory and ground layer.

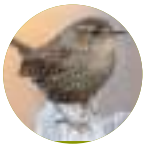
Wildlife

Birds

Number of species: 11

Species Assemblange: Species observed were habitat-generalists, capable of nesting in a wide variety of large and small forests, wetlands and cultural communities in southern Ontario.

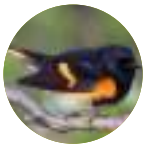
Common species:


House Wren


American Goldfinch


Chipping Sparrow


Black-capped Chickadee


Juvenile American Redstarts

Mammals

Number of Species: 1

Species Assemblange: Deer Mouse was documented during Winter Mammal Tracking Surveys and Cherry-faced

Common species:


Deer Mouse

Wildlife

Insects

Number of Species: 1

Species Assemblage: Meadowhawks were noted during summer flora surveys.

Common species:

Cherry-faced Meadowhawk

Fish

Number of Species: N/A

Species Assemblage: There is no fish habitat located on the TAP; however, the TAP is located in close proximity to the Otonabee River. The TAP is separated from the river by a narrow strip of land and Armour Road. The Otonabee River supports habitat for a broad range of fish including large and small mouth bass, pan fish, carp, walleye, and muskellunge.

Indigenous Traditional Knowledge

No sites, areas or species were specifically identified within TAP 1F through ITK engagement sessions.

Valued Traditional Knowledge Species:

Although no species were specifically identified through ITK workshops and walks on TAP 1F, species identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program, including:


White Spruce


Riverbank Grape


Staghorn Sumac


Eastern Red Cedar


Eastern White Pine


Ground-cherry species


Yarrow Species (Wolly, Common)


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)


Climbing Bittersweet

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No wetlands occur on 1F. No wetlands occur within 120m of TAP 1F east of the Otonabee River; A small wetland is identified through secondary source mapping within 120m on the west side of the Otonabee River.

Significant Wildlife Habitat (SWH)

Candidate SWH includes:

- Shrub / Early Successional Breeding Bird Habitat

TAP 1F is contiguous to TAP 1A. The cultural meadow community shows evidence of early succession indicating that site-specific consideration for the contiguous areas of habitat (TAP 1A, 1F and beyond) is warranted. Determination of habitat significance (i.e. significant or not significant) will be made through site-specific study.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

No SAR (Endangered or Threatened Species) were identified on the TAP.

No SCC species were identified on the TAP.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

The Otonabee River is a significant feature and area. It provides habitat for both resource and sacred species and provides movement corridors for many species. In addition to these, water is recognized for its significance as the earths blood and critical to natural systems, plants, animals and people.

Summary of Constraints

Summary of Preliminary Constraints

The parcel contains candidate significant features (candidate SWH), which require further assessment to confirm the significance designation. As this area is contiguous to and shows similar characteristics to TAP 1A, TAP 1F is identified as 'Pending Further Assessment' through preliminary assessment. Determination of habitat significance (i.e. significant or not significant) will be made through site-specific study.

Assessment Parcel: **2C**

General Description

Size: ~3 ha

Assessed: 2018-2019

Location: TAP 2C fronts onto Woodland Drive to the south and is bounded by the Total Loss Farm Nature Area (TLFNA) to the north and east. A watercourse flows through the TLFNA to the north of TAP 2C and separates TAP 2C and 2D.

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature. The parcel was used for active agricultural (either use as pasture lands or as farmland) in the past 50 years. TAP 2C is has low topographic relief, gently sloping to the east.

Current Land Use(s) & Site Condition

No formal recreational or educational land uses occur on-site. No research or educational sites or areas were identified as occurring on the TAP. The land has been left fallow and is slowly regenerating.

The overall condition of this site is poor-fair. This site is very cultural (little vegetation community structure and diversity, high percentage of non-natives), has a recent history of anthropogenic disturbances (agriculture), as well as motorized vehicle use and informal trails. The recovery of this area to remnant conditions will not occur.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Western Chorus Frog and calling Anuran surveys
Bat habitat and bat acoustic monitoring
Mammal tracking surveys (Winter)
Owl callback surveys

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 93

Total non-native plant species: 28

FQI: 24.05 (low value)

Native mean coefficient: 3.11 (low value)

Notes:

No provincially or federally ranked, or at-risk flora species occur at this site. Highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include European Buckthorn (Rhamnus cathartica) and Tartarian Honeysuckle (Lonicera tatarica).

Three vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Mineral Cultural Savannah (CUS1)
- Mineral Cultural Woodland (CUW1)
- Dry-Fresh Poplar Mixed Forest Type (FOM5-2)

Each community is generally described below:

1 Mineral Cultural Savannah (CUS1)


Scots Pine


White Elm


White Ash


Common Juniper


Poison Ivy


Tall Golderod


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover

The CUS occurs in the central portion of of 2C and boarders the narrow strip of meadow marsh that divdies 2C from 2D. The canopy (2-10m in height; 25-35% cover) in the cultural savannah is Green and White Ash, White Elm and Scots Pine. The sub-canopy (1-2m in height; 25-35% cover) is ash and Scots Pine. The understory (0.5-1m in height; 25-35% cover) is Scots Pine and Common Juniper. The ground layer (≤1m in height; >60% cover) is old-field species (e.g., perennial grasses, heaths, and herbaceous plants); Common Timothy, Orchard Grass, Smooth Brome, Wild Carrot, Tufted Vetch, Red Clover, Aster species (New England Aster, Old Field Aster, etc.) and Goldenrod species (Solidago sp.). Poison Ivy is universal in the ground layer.

Vegetation & Vegetation Communities

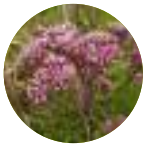
1 Mineral Cultural Savannah (CUS1)


Willow Species


Marsh Marigold


Silky Dogwood


Boneset


Spotted Joe Pye Weed


Rice Cutgrass


Reed Canarygrass


American Basswood


Sugar Maple


European Buckthorn


Tall Golderod

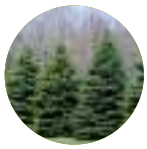

Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)

Between 2D and 2C is a meadow marsh supported by the watercourse that occurs. The area supports a variety of species; Bebb's Willow (Salix bebbiana) , Pussy Willow (Salix discolor), Cottony Willow (Salix eriocephala), Marsh Marigold (Caltha palustris), Silky Dogwood (Cornus obliqua), Boneset (Eupatorium perfoliatum), Spotted Joe Pye Weed (Eutrochium maculatum), Rice Cutgrass (Leersia oryzoides), Reed Canarygrass (Phalaris arundinacea), and several other wetland species.

Offsite, along Lakefield Road, is the remains of a hedgerow that boarders the boundary of 2C. The canopy (10-25m in height; >60% cover) is Sugar Maple (Acer saccharum), American Basswood (Tilia americana), and ash. The sub-canopy is depapurate while the understory (1-2 m in height; >60% cover) is European Buckthorn. The ground layer (<1m in height; >60% cover) is Zig-zag Goldenrod (Solidago flexicaulis) in the upland and the meadow marsh community in the bottomland.

Vegetation & Vegetation Communities

2 Mineral Cultural Woodland (CUW1)


White Spruce


White Elm


Scots Pine


European Buckthorn


Paper Birch


Common Juniper


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover


Eastern White Cedar


Tall Golderod


Poison Ivy

An inclusion of Mineral Cultural Woodland (CUW1) occurs within the CUS1 community. The inclusion has a typical vegetation composition of agriculturally influenced areas. The cultural woodland canopy (2-10m in height; 35-60% cover) is a mix of White Spruce (Picea glauca), White Elm (Ulmus americana), Scots Pine (Pinus sylvestris), and dead/dying ash (Fraxinus species).

The sub-canopy (1-2m in height; 35-60% cover) is European Buckthorn (Rhamnus cathartica), ash, and occasional Paper Birch (Betula papyrifera). The undertsory (0.5-1m in height) is European Buckthorn, Common Juniper (Juniperus communis), Eastern White Cedar (Thuja occidentalis), and Scots Pine seedlings.

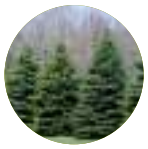
The ground layer (≤0.5m in height; >60% cover) is old-field species (e.g., perennial grasses, heaths, and herbaceous plants); Common Timothy (Phleum pratense), Orchard Grass (Dactylis glomerata), Smooth Brome (Bromus inermis), Wild Carrot (Daucus carota), Tufted Vetch (Vicia cracca), Red Clover (Trifolium pratense), Aster species (New England Aster [Symphyotrichum novae-angliae], Old Field Aster [Symphyotrichum pilosum], etc.) and Tall Goldenrod (Solidago altissima). Poison Ivy (Toxicodendron racicans var. rydbergii) is ubiquitous in the ground layer.

Vegetation & Vegetation Communities

3 Dry-Fresh Poplar Mixed Forest Type (FOM5-2)


Eastern White Cedar


Trembling Aspen

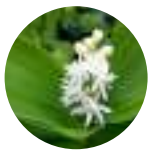

White Spruce


White Ash


Paper Birch


European Buckthorn


Canada Wild Ginger


Star-flowered False Solomon's Seal


Zig-Zag Goldenrof


Poison Ivy

This community occurs along to Woodland Drive and extends up Water Street. A small section occurs within the parcel; outside of the parcel some areas or Eastern White Cedar are very dense and little diversity or structure occurs. Within the parcel Eastern White Cedar, Trembling Aspen, and White Spruce dominate in the canopy (10-25m in height; 35-60% cover) with White Elm (Ulmus americana), Green Ash, White Ash, and Paper Birch associates. The sub-canopy (2-10m in height; 35-60% cover) contains the same species. The understory (1-2m in height; 10-25% cover) is dominated by European Buckthorn and some succession of canopy species. The ground layer (<1m in height; 35-60% cover) is dominated by native herbacous cover such as Canada Wild Ginger (Asarum canadense), Star-flowered False Solomon's seal (Maianthemum stellatum), Zig-Zag Goldenrod (Solidago flexicaulis) and Posion Ivy.

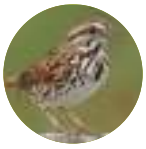
Wildlife

Birds

Number of species: 24

Species Assemblange: Species observed were a mix of habitat-generalist, edge/early successional, and forest species. Generalist species capable of nesting in a wide variety of large and small forests, wetlands and cultural communities in southern Ontario

Common species:


Song Sparrow


House Wren


American Goldfinch


Chipping Sparrow


Black-capped Chickadee


American Goldfinch

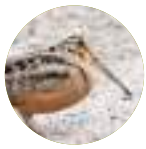

American Robin


Baltimore Oriole

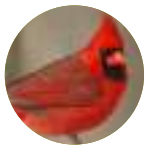

Brown-headed Cowbird


Chipping Sparrow

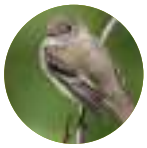
Edge/Early Successional species:

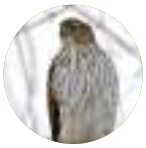

American Woodcock

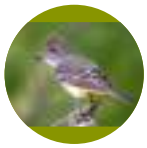

Nashville Warbler


Northern Cardinal

Area sensitive species:


Alder Flycatcher


Cooper's Hawk


Great Crested Flycatcher

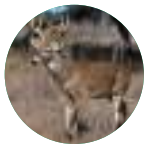
Wildlife

Mammals

Number of Species: 2

Species Assemblange: Species observed were predominantly common spieces found in and near urban and semi-urban areas. It is highly probable that other species, such as mice and raccoons, are found on this parcel.

Common species:


White-tailed Deer

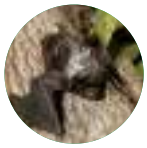

Red Fox


Coyote

Possible coyote tracks were observed. Imperfect tracks and high volume of domestic dog prints prevent definitive confirmation.

Other species: One vegetation community / ecosite (FOM5-2) on TAP 2C was identified as suitable as potential bat habitat. There was one record of a myotis species. All myotis species that occur in Ontario are listed as Endangered.


Big Brown Bat


Silver-haired Bat


Eastern Red Bat


Hoary Bat


Tri-coloured Bat

Herptile

Number of Species: N/A

Species Assemblange: Anuran calling station #1 (also Western Chorus Frog Station #11) is located at the north end of TAP 2C and faces into the meadow marsh wetland and watercourse located within the Total Loss Farm Nature Area. No calling amphibians (anurans) were recorded during any of the surveys.

Wildlife

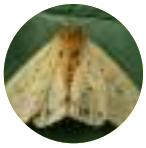
Insects

Number of Species: 4

Species Assemblage: Insects were documented incidentally and observations are representative, not comprehensive. Those species observed are common in Ontario. Low diversity of native vegetation is expected to reduce overall native insect diversity.

Common species:


Hickory Tussock Moth


Woolly Bear


Cherry-faced Meadowhawk


Winter Firefly

Fish

Number of Species: N/A

Species Assemblage: No watercourses or fish habitat occur on TAP 2C; an unnamed watercourse originates in the forested wetland north of the parcel within the Total Loss Farm Nature Area (TLFNA) and flows as an intermittent stream as it crosses into privately own agricultural lands east of 2D. The watercourse becomes permanent as it flows through the property to the east before turning abruptly west and flowing between parcels 2D and 2C within the TLFNA. The watercourse crosses under Lakefield Road and flows east through Lock 22 Nature Area south of TAP 2E, through a stormwater management pond and finally outletting to the Trent-Severn Waterway at Lock 22 (L22A). Water was present through the section that flows in the TLFNA between TAP 2C and 2D at the time of field investigations (spring, summer), confirming that the watercourse is permanent through this reach.

Indigenous Traditional Knowledge

No sites or areas were specifically identified within TAP 2C through ITK engagement sessions. Wild Ginger, Plantain sp., and Mullein were identified as occurring on the parcel and have medicinal, sacred and/or resource significance in TK.

Valued Traditional Knowledge Species:

Wild Ginger, Plantain sp., and Mullein were identified as occurring on the parcel through ITK workshops or sharing meetings. Additional species identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program. The complete list of species with TK significance is provided below


White Spruce


Eastern White Pine


Eastern White Cedar


Riverbank Grape


Wild Strawberry


White Elm


Paper Birch


White Ash


Staghorn Sumac


Yarrow Species (Wolly, Common)


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No PSW occur on or within 120m of TAP 2C. Wetlands (meadow marsh) adjacent to the parcel are 'unevaluated' for provincial significance.

Significant Wildlife Habitat (SWH)

No candidate SWH identified:

TAP 2C and 2D, when considered together, meet habitat requirements for Raptor Wintering (Feeding and Roosting) Areas. Based on available observational data the species requirements are not met and as such it was determined that this SWH type was not present. Additional survey through site-specific work (e.g., and EIS) should consider this habitat type at the time of site-specific planning to confirm this assessment.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

Monarch Butterfly, listed as Special Concern under ESA 2007 (Provincial) and SARA 2004 (Federal), was observed on the parcel; common milkweed occurs on the parcel and is the host plant for this species.

Bat acoustic recording captured one vocalization from a Myotis species and one vocalization from Tri-coloured bat; these species are listed as Endangered under ESA 2007 (Provincial). Tri-coloured bat and all myotis species (Little Brown Myotis, Eastern Small-footed Myotis, Northern Myotis) are federally listed as Endangered under SARA 2004. It is anticipated that bat species are primarily using the site for foraging (which is not considered Significant Wildlife Habitat) and have potential to use the FOM5-2 vegetation community / ecosite for roosting. While the majority of this vegetation community occurs adjacent to the parcel (associated with TLFNA), a portion of the community extends onto TAP 2C.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

No features or areas were identified on the parcel through ITK workshops or sharing meetings.

Summary of Constraints

Summary of Preliminary Constraints

The parcel does not contain any candidate or confirmed significant features and therefore has no known constraints based on policy. This area is identified as 'No Known Constraints' in the preliminary assessment.

Assessment Parcel: **2D**

General Description

Size: ~14 ha

Assessed: 2018-2019

Location: Located along Lakefield Road (eastern boundary), the northeast corner is bounded by the Selwyn Township divide. To the west and south is an intermittent watercourse. Parcel 2C is located south, on the other side of the watercourse, and 2E is located on the opposite side of Lakefield Road.

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature. The parcel was used for active agricultural (either use as pasture lands or as farmland) in the past 50 years. Coniferous plantations are established on-site; based on aerial imagery, it is anticipated these were planted in the 1970s.

Current Land Use(s) & Site Condition

No formal recreational or educational land uses occur on-site.
No land uses such as recreation, educational or research sites were identified as occurring on the Trent Assessment Parcel (TAP) through consultation processes or secondary source information. An informal trail loop was observed onsite; it appears to be maintained purposefully or through frequency of use by local members of the community.
The overall condition of this site is poor-fair. Vegetation communities present have a high percentage of non-native species, and highly invasive plant species are prevalent throughout.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Western Chorus Frog and calling Anuran surveys
Bat habitat and bat acoustic monitoring
Mammal tracking surveys (Winter)
Owl callback surveys

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 121

Total non-native plant species: 46

FQI: 26.91 (low value)

Native mean coefficient: 3.31 (low value)

Notes:

No provincially or federally ranked, or at-risk flora species occur at this site. Highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include Dog-Strangling Vine (Vincetoxicum rossicum), European Buckthorn (Rhamnus cathartica), honeysuckles (Tartarian Honeysuckle [Lonicera tatarica] and Morrow's Honeysuckle [Lonicera morrowii]), and Periwinkle (Vinca minor).

Eight vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Mineral Cultural Woodland (CUW1)
- Deciduous Hedgerow (HEDGE)
- Coniferous Plantation (CUP3) and White Spruce – European Larch Coniferous Plantation Type (CUP3-8)
- Mineral Cultural Meadow (CUM1)
- Thicket Swamp (SWT)
- Mineral Cultural Savannah (CUS1)
- Fresh – Moist White Cedar Coniferous Forest Ecosite (FOC4)

Each community is generally described below:

1 Mineral Cultural Woodland (CUW1)


Scots Pine


Trembling Aspen


White Ash


White Elm


European Buckthorn


Common Juniper


Eastern White Cedar


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch

Cultural woodland occurs in the south of 2D. The cultural woodland has a very typical vegetation composition of agriculturally influenced areas. The canopy (10-25 m in height; 35-60% cover) varies. In the northwest, the woodland canopy is Red Pine, Scots Pine, and White Ash. In the southeast, the canopy is Black Locust and Trembling Aspen. The sub-canopy (2-10m in height; 10-25% cover) is comprised of the same species that occur in the canopy as well as White Elm. The understory and ground story (<2 m in height; >60% cover) is European Buckthorn, Common Juniper (Juniperus communis), Eastern White Cedar, and Scots Pine seedlings with old-field species (e.g., perennial grasses, heaths, and herbaceous plants); Common Timothy (Phleum pratense), Orchard Grass (Dactylis glomerata), Smooth Brome (Bromus inermis), Wild Carrot (Daucus carota), Tufted Vetch (Vicia cracca), Red Clover (Trifolium pratense), Aster species (New England Aster, Old Field Aster, etc.) and Tall Goldenrod (Solidago altissima). Poison ivy is ubiquitous in the ground layer.

Between 2D and 2C is a meadow marsh supported by the watercourse. The area supports a variety of species; Bebb's Willow (Salix bebbiana), Pussy Willow (Salix discolor), Cottony Willow (Salix eriocephala), Marsh Marigold (Caltha palustris), Silky Dogwood (Cornus obliqua), Boneset

Vegetation & Vegetation Communities

1 Mineral Cultural Woodland (CUW1)


Red Clover


Aster


Tall Goldenrod

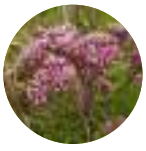

Poison Ivy


Willow Species

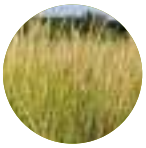

Marsh Marigold


Silky Dogwood


Boneset


Spotted Joe Pye Weed


Rice Cutgrass


Reed Canarygrass


American Basswood


Sugar Maple

(Eupatorium perfoliatum), Spotted Joe Pye Weed (Eutrochium maculatum), Rice Cutgrass (Leersia oryzoides), Reed Canarygrass (Phalaris arundinacea), and several other wetland species.

Offsite, along Lakefield Road, is an approximately 0.5 ha area that has a canopy (10-25m in height; >60% cover) of Sugar Maple, American Basswood, and Green Ash. The sub-canopy is depapurate while the understory (1-2 m in height; >60% cover) is European Buckthorn. The ground layer (<1m in height; >60% cover) is Zig-zag Goldenrod in the upland and the above meadow marsh community in the bottomland.

2 Deciduous Hedgerow


Sugar Maple

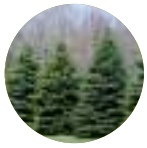

Sugar Maple

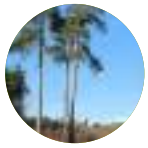

American Basswood

The hedgerow community is unique as it has the oldest trees on site. Trees in this hedgerow appear to be established in 1929 aerial images. The hedgerow is predominately American Basswood, but a few Sugar Maple and Black Cherry also occur.

Vegetation & Vegetation Communities

3 Coniferous Plantation (CUP3) and White Spruce – European Larch Coniferous Plantation Type (CUP3-8)


White Spruce


Scots Pine


European Buckthorn


Trembling Aspen


Poison Ivy

The coniferous plantations on site were planted after 1966, likely in the 1970s, and therefore are 50 years old or less. White Spruce wholly dominates the CUP3-8 plantation; the spruce is very dense and prevents the growth of other species. The other plantations on site are a patchwork of Scots Pine, Red Pine, and White Spruce. These plantations are less dense than the CUP3-8 and support a familiar diversity of successional species; European Buckthorn, Trembling Aspen, Green Ash, and old-field species (e.g., perennial grasses, heaths, and herbaceous plants) seen in cultural meadows on-site. The thicket swamp to the north contributes water to low areas in the central CUP3 and therefore provides diversity to moisture regimes, which encourages a different variety of vegetation. Poison ivy is abundant in the ground layer where openings in the canopy exist.

4 Mineral Cultural Meadow (CUM1)


White Ash


Scots Pine


European Buckthorn

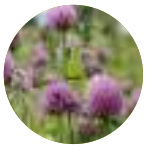

Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover


Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)


Goldenrod Species

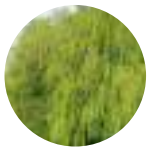

Poison Ivy

This community occurs along Lakefield Road and contains a hydro corridor. The canopy (10-25 m in height; ≤10% cover) and sub-canopy (2-10m in height; ≤10% cover) is White Ash and Scots Pine. The understory (1-2 m in height; 10-25% cover) is Scots Pine, European Buckthorn, White Ash, and Staghorn Sumac. The ground layer (≤1 m in height; >60% cover) is old-field species (e.g., perennial grasses, heaths, and herbaceous plants); Common Timothy (Phleum pratense), Orchard Grass (Dactylis glomerata), Smooth Brome (Bromus inermis), Wild Carrot (Daucus carota), Tufted Vetch (Vicia cracca), Red Clover (Trifolium pratense), Aster species (New England Aster, Old Field Aster, etc.) and Goldenrod species (Solidago sp.). Poison ivy is universal in the ground layer.

Vegetation & Vegetation Communities

5 Thicket Swamp (SWT)


Eastern White Cedar


Hybrid White Willow


White Elm


Maintoba Maple


Red-osier Dogwood


Sandbar Willow


Reed Canarygrass


White Panicle Aster


Field Horsetail

This community occurs between the cultural meadow and savannah, originating from the property north of 2D (2633 Lakefield Road). The thicket swamp was farmed until approximately 50 years ago, and soils are not well sorted; however, the area is dominated by wetland obligate and facultative species, especially near the northern limit. As the community reaches the plantation, it narrows and becomes more cultural (i.e., edge effects from the meadow and savannah are more apparent, and an increase in facilitative species is found). The thicket swamp provides water (and therefore alters moisture regimes) to low areas in the central plantation.

The thicket swamp canopy (10-25 m in height; ≤10% cover) and sub-canopy (2-10 m in height; ≤10% cover) in the north is an occasional Eastern White Cedar or Hybrid White Willow (Salix x alba). In the south, the canopy and sub-canopy are White Elm, Green Ash, and Manitoba Maple. The understory (1-2m in height; 35-60% cover) is dominated by Red-osier Dogwood and Sandbar Willow (Salix petiolaris). The ground layer (≤1 m in height; >60% cover) is dominated by Reed Canarygrass, Kentucky Bluegrass (Poa pratensis), White Panicle Aster (Symphyotrichum lanceolatum), Field Horsetail (Equisetum arvense), and Reptop (Agrostis gigantea).

6 Mineral Cultural Savannah (CUS1)


Eastern White Cedar


White Elm


Trembling Aspen


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover


Aster Species


Goldenrod Species

The CUS occurs in the north of 2D and is bordered by shrub and tree communities. Due to the succession of vegetation from the adjacent areas, and remnant hedgerows, this community has greater tree and shrub cover that the cultural meadow to the southeast. It also displays active succession towards a wooded community type. The canopy (10-25m in height; 25-35% cover) and sub-canopy (2-10 m in height; 25-35% cover) is Eastern White Cedar, ash, White Elm, and Trembling Aspen. The understory and ground layer (≤1 m in height; >60% cover) is old-field species (e.g., perennial grasses, heaths, and herbaceous plants); Common Timothy (Phleum pratense), Orchard Grass (Dactylis glomerata), Smooth Brome (Bromus inermis), Wild Carrot (Daucus carota), Tufted Vetch (Vicia cracca), Red Clover (Trifolium pratense), Aster species (New England Aster, Old Field Aster, etc.) and Goldenrod species (Solidago sp.). Poison ivy is universal in the ground layer.

Vegetation & Vegetation Communities

7 Fresh – Moist White Cedar Coniferous Forest Ecosite (FOC4)

Eastern White Cedar

American Basswood

Historically the land north and west of this area was not farmed; to the west is a slope and a watercourse and to the north, beyond the property line, is cedar swamp/forest. When the parcel was no longer farmed cedar quickly succeeded in from the edges. The canopy (2-10 m in height; >60% cover) is dense with Eastern White Cedar, and no community structure or vegetation diversity occurs. The even-age and lack of vegetation diversity mean it is tough to determine where wetland boundaries occur; based on topography and surrounding ELC communities, inclusions of cedar swamp (SWC1-1) and deciduous swamps occur (SWD).

American Basswoods that emerge above the canopy occur along the remnant hedgerow, which comprises the northern boundary for 2D.

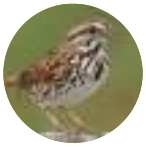
Wildlife

Birds

Number of species: 37

Species Assemblange: Species observed were mostly habitat-generalists found in large and small forests, wetlands and cultural communities in southern Ontario

Common species:


Song Sparrow

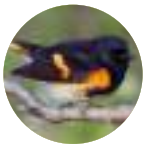

House Wren


American Goldfinch


Chipping Sparrow


Black-capped Chickadee

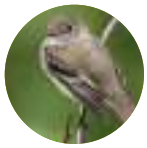
Area sensitive species:


American Redstart


Hairy Woodpecker


Pine Warbler


Barred Owl

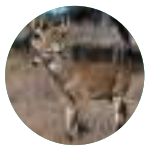

Alder Flycatcher

Mammals

Number of Species: 3

Species Assemblange: Species observed were predominantly common spieces found in and near urban and semi-urban areas

Common species:


White-tailed Deer

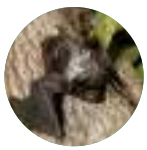

Red Fox


Coyote

Possible coyote tracks were observed. Imperfect tracks and high volume of domestic dog prints prevent definitive confirmation.

Other species: One vegetation community / ecosite (FOC2-2) on TAP 2D was identified as suitable as potential bat habitat There was one record of a myotis species. All myotis species that occur in Ontario are listed as Endangered. Based on habitat conditions present, it is anticipated that foraging is a primary use of the parcel with potential use of the FOC2-2 ecosite for roosting..


Big Brown Bat


Silver-haired Bat


Eastern Red Bat


Hoary Bat


Tri-coloured Bat

Wildlife

Herptile

Number of Species: N/A

Species Assemblange: At Anuran calling station #2 Spring Peeper, Wood Frog, Gray Treefrog, and American Toad were heard calling offsite. Western Chorus Frog was heard calling off-site at the property north of 2D (2633 Lakefield Road).

Insects

Number of Species: 14

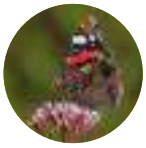
Species Assemblage: Insects were documented incidentally and observations are representative, not comprehensive. Those species observed are common in Ontario. Low diversity of native vegeation is expected to reduce overall native insect diversity.

Common species:


Pearl Crescentt


Little Wood-Satyr

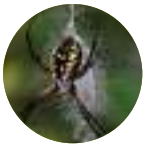

Common Wood-Nymph


Red Admiral


Monarch


Cherry-faced Meadowhawk


Four-humped Stink Bug


Orb Weaver Spider


Bumblebee Species

Fish

Number of Species: N/A

Species Assemblage: No watercourses or fish habitat occur on TAP 2D; an unnamed watercourse originates in the forested wetland northeast of the parcel within the Total Loss Farm Nature Area (TLFNA) and flows as an intermittent stream as it crosses into privately own agricultural lands east of 2D. The watercourse becomes permanent as it flows through the property to the east before turning abruptly west and flowing between parcels 2D and 2C within the TLFNA. The watercourse crosses under Lakefield Road and flows east through Lock 22 Nature Area south of TEP 2E, through a stormwater management pond and finally outletting to the Trent-Severn Waterway at Lock 22 (L22A). Shallow water was present through the section that flows in the TLFNA between TAP 2C and 2D at the time of field investigations, confirming that the watercourse is permanent through this reach.

Indigenous Traditional Knowledge

No sites or areas were specifically identified within TAP 2D through ITK engagement sessions. Species of Ash and Oak trees were identified as occurring in the parcel and were identified in TK for medicinal, sacred and / or resource purposes.

Valued Traditional Knowledge Species:

Two trees were identified as occurring on the parcel through ITK workshops or sharing meetings: Ash and Oak trees. In addition to these, the following TK species identified for other parcels or through dialogue and knowledge sharing were observed as occurring on the parcel through the field survey program:


White Spruce


Eastern White Cedar


Riverbank Grape


Wild Strawberry


Elm Species (White, Splippery)


Oak Species (Northern Red)

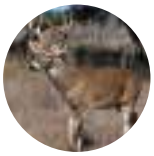

Staghorn Sumac


Ash Species (White, Red)


Common Plantain


Yarrow Species (Wolly, Common)


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)


White-tailed deer


Monarch

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No PSW occur on or within 120m of TAP 2D. Wetlands adjacent to the parcel are 'unevaluated' for provincial significance.

Significant Wildlife Habitat (SWH)

Candidate SWH includes:

- Special Concern and Rare Wildlife Species (Eastern Wood Pewee, Wood Thrush)

Habitats present are transitioning from cultural meadow to thicket communities. Presence of some indicator species in combination with transitional communities supports the need for assessment at future planning stages to assess the area as SWH.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

Monarch Butterfly, listed as Special Concern under ESA 2007 (Provincial) and SARA 2004 (Federal), was observed on the parcel; common milkweed occurs on the parcel and is the host plant for this species.

Bat acoustic recording captured one vocalization from a Myotis species and 3 vocalizations from Tri-coloured bat; these species are listed as Endangered under ESA 2007 (Provincial). Tri-coloured bat and all myotis species (Little Brown Myotis, Eastern Small-footed Myotis, Northern Myotis) are federally listed as Endangered under SARA 2004. It is anticipated that bat species are primarily using the site for foraging.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Eastern Wood Pewee and Wood Thrush were identified adjacent to the TAP (associated with TLFNA). Potential habitat extends onto TAP 2D, triggering candidate SWH. No observations of the species occurred on the TAP during field investigations. Confirmation of habitat use should be undertaken through site-specific surveys (e.g., an EIS) in support of any future site planning.

Significant Indigenous Features & Areas

No features or areas were identified on the parcel through ITK workshops or sharing meetings.

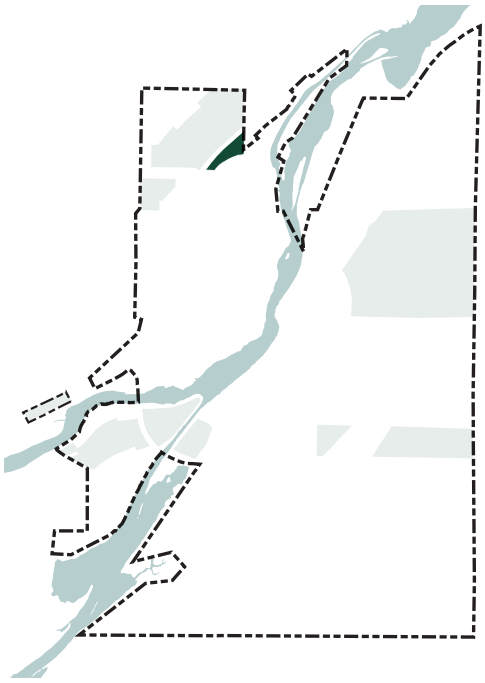
Summary of Constraints

Summary of Preliminary Constraints

The central portion of parcel 2D and a small area in the north are identified as significant woodland which are therefore 'High Constraint' through the preliminary assessment presented in the natural heritage study. The narrow wetland feature that crosses diagonally across the TAP and the CUS community are identified as 'Pending Further Assessment'. It is also recommended that the CUS be assessed to determine if it meets the stand density of a woodland or falls below this threshold and the preliminary designation as CUS is confirmed. Based on the outcomes of these works, the final constraint ranking for these features can be determined. The balance of TAP 2D is identified 'Low/No Constraint' based on preliminary assessment.

Assessment Parcel: **2E**

General Description



Size: ~2 ha

Assessed: 2018-2019

Location: Located along Lakefield Road (western boundary), the north boundary is the property line for 2618 Lakefield Road and the Selwyn Township divide. To the east is coniferous forest and the south is meadow marsh and a continuation of the intermittent stream that separates 2C and 2D; 2D is to the west on the opposite side of Lakefield Road.

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature with agricultural practices (either use as pasture lands or as farmland) was active on this parcel in the past 50 years. Coniferous plantations are established on-site; likely planted in the 1970s.

Current Land Use(s) & Site Condition

No formal recreational land uses occur on-site. No known educational or research sites or areas were identified as occurring on the parcel.

The overall condition of this site is poor-fair. 2E has a recent agricultural history, is approximately 44% plantation, and communities have a high average percentage of non-natives, with the highly invasive European Buckthorn spread throughout. Local resident(s) have a pathway leading to the MAM and might be using a deer trail to access more of the parcel.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Bat habitat and bat acoustic monitoring
Mammal tracking surveys (Winter)

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 87

Total non-native plant species: 21

FQI: 28.59 (low value)

Native mean coefficient: 3.75 (medium value)

Notes:

.No provincially or federally ranked, or at-risk flora species occur at this site. The medium value is a result of the coniferous forest (and MAM inclusion) having few non-native species and generally succeeding from the adjacent community well. Highly invasive plant species (as regarded by Ontario Invasive Plant Council) found on this site include European Buckthorn (Rhamnus cathartica) and honeysuckles (Lonicera sp.).

Three vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Mineral Cultural Woodland (CUW1)
- Coniferous Plantation (CUP3)
- Fresh – Moist White Cedar Coniferous Forest Ecosite (FOC4)

Each community is generally described below:

1 Mineral Cultural Woodland (CUW1)


Scots Pine


Eastern White Cedar


European Buckthorn


Chokecherry


Red-osier Dogwood


Aster Species


Common Timothy


Orchard Grass


Smooth Brome


Wild Carrot


Tufted Vetch


Red Clover

The cultural woodland canopy (2-10 m in height; 35-60% cover) is Scots Pine and Eastern White Cedar. The sub-canopy (1-2 m in height; 25-60% cover) is also Scots Pine and Eastern White Cedar as well as European Buckthorn, Dotted Hawthorn (Crataegus punctata), and occasional Chokecherry. The understory (0.5-1m in height; 25-60% cover) is dense with European Buckthorn and occasionally Red-osier Dogwood to the west. The ground layer (≤0.5m in height; >60% cover) is Aster species (Heart-leaved Aster, Calico Aster, New England Aster, Old Field Aster, and Purple-stemmed Aster) and Goldenrod species (Tall goldenrod, Canada Goldenrod, Zigzag Goldenrod, and Grey-stemmed Goldenrod). Old-field species (e.g., perennial grasses, heaths, and herbaceous plants) are also abundant; Common Timothy (Phleum pratense), Orchard Grass (Dactylis glomerata), Smooth Brome (Bromus inermis), Wild Carrot (Daucus carota), Tufted Vetch (Vicia cracca), Red Clover (Trifolium pratense). Poison ivy is ubiquitous in the ground layer.

Vegetation & Vegetation Communities

2 Coniferous Plantation (CUP3)


Scots Pine


European Buckthorn


Cedar Species

The coniferous plantations on site were planted after 1966, likely in the 1970s, and therefore are 50 years old or less. The plantation species is a column of Scots Pine closest to Water Street followed by a column of White Spruce between the Scots Pine and the cedar community. The canopy trees are 10-25m in height and have greater than 60% coverage. The sub-canopy is practically non-existent while the understory (1-2 m in height;35-60% cover) is European Buckthorn dominant with Tartarian Honeysuckle. The ground layer (≤1 m in height; 35-60% cover) is dominated by Poison Ivy and European Buckthorn seedlings. Additionally, many of the same ground layer flora from the cultural woodland to the south and the cedar community to the east can be sporadically found in the plantation; as the plantation is very narrow and small (approximately 0.7 ha) edge effects contribute to the vegetation in the ground layer.

3 Fresh – Moist White Cedar Coniferous Forest Ecosite (FOC4)


Eastern White Cedar


Sensitive Fern


Field Horsetail


Dwarf Scouring-rush


Rough Bedstraw


Ostrich Fern

Succeeding from the remnant cedar forest to the east (that abuts 2E property boundary) this young cedar forest occurs on a gentle slope. The canopy (2-10 m in height; >60% cover) is dense, Eastern White Cedar with no other community structure or diversity occurs, however, where the canopy is open or thin ground flora occurs. The ground flora includes Sensitive Fern (Onoclea sensibilis), Field Horsetail, Dwarf Scouring-rush (Equisetum scirpoides), Rough Bedstraw (Galium asprellum), and Ostrich Fern (Matteuccia struthiopteris).

A meadow marsh inclusion occurs in the FOC4, with a fraction of the MAM occurring in the TAP. This MAM contains Rough-stemmed Goldenrod (Solidago rugosa), Northern Water-horehound (Lycopus uniflorus), Sensitive Fern, Purple-stemmed Aster (Symphyotrichum puniceum), Spotted Joe Pye Weed, Fringed Sedge (Carex crinita), and Common Marsh Bedstraw (Galium palustre).

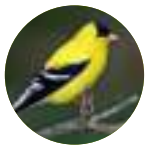
Wildlife

Birds

Number of species: 17

Species Assemblange: Species observed were a mix of habitat-generalist, edge/early successional, and forest species.

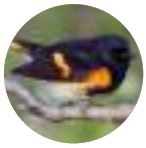
Common species:


American Goldfinch


Black-capped Chickadee


Yellow Warbler

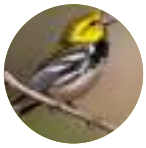
Edge/Early Successional species:


American Redstart


Nashville Warbler


Northern Cardinal

Area sensitive species:


Black-throated Green Warbler


Hairy Woodpecker


Magnolia Warbler


Ovenbird


Pileated Woodpecker


Red-breasted Nuthatch

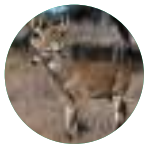
Wildlife

Mammals

Number of Species: 2

Species Assemblange: White-tailed Deer runs, and porcupine tracks and feeding were found during winter tracking surveys. The porcupine was located feeding a-top cedar trees in the Nature Area to the east of 2E.

Common species:


White-tailed Deer

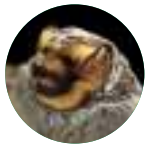

Porcupine

Other species: One vegetation community / ecosite (FOC4) on TAP 2E was identified as suitable as potential bat habitat. No cavity trees were identified in the FOC4 community.Based on habitat conditions present, it is anticipated that foraging is a primary use of the parcel with potential use of the FOC4 ecosite for roosting under loose bark (i.e., no cavity trees present), so species who use these conditions for roosting.


Big Brown Bat


Silver-haired Bat


Eastern Red Bat


Hoary Bat


Tri-coloured Bat

Herptile

Number of Species: 1

Species Assemblange: At the south corner of the parcel, is Anuran calling station #4; Spring Peeper, American Toad, and Gray Treefrog were heard from here. The meadow marsh south of the parcel also has Wood Frog and Western Chorus Frog.

During summer surveys an Eastern Gartersnake was found at the edge of the MAM and FOC4.

Common Species


Eastern Gartersnake

Wildlife

Fish

Number of Species:	N/A
Species Assemblage:	No watercourses or fish habitat occur on TAP 2E; an unnamed watercourse originates in the forested wetland northeast of TAP 2D and 2C within the Total Loss Farm Nature Area (TLFNA) and flows as an intermittent stream as it crosses into privately own agricultural lands east of 2D. The watercourse becomes permanent as it flows through the property to the east before turning abruptly west and flowing between parcels 2D and 2C within the TLFNA. The watercourse crosses under Lakefield Road and flows east through Lock 22 Nature Area south of TAP 2E, through a stormwater management pond and finally outletting to the Trent-Severn Waterway at Lock 22 Nature Area (L22NA).

Indigenous Traditional Knowledge

No sites or areas were specifically identified within TAP 2E through ITK engagement sessions. No species were identified as specifically occurring on TAP 2E through ITK workshops and walks.

Valued Traditional Knowledge Species:

Two trees were identified as occurring on the parcel through ITK workshops or sharing meetings: Ash and Oak trees. In addition to these, the following TK species identified for other parcels or through dialogue and knowledge sharing were observed as occurring on the parcel through the field survey program:


White Spruce


Eastern White Cedar

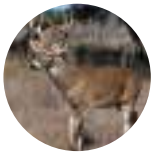

Riverbank Grape


Bur Oak


Ash Species (White, Red)


Yarrow Species (Wolly, Common)


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)


White-tailed deer

Significant Features & Areas

Provincially Significant Wetlands (PSW)

No PSW occur on or within 120m of TAP 2E. Wetlands adjacent to the parcel are unevaluated for provincial significance.

Significant Wildlife Habitat (SWH)

No Candidate Significant Wildlife Habitat was identified in TAP 2E.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

No features or areas were identified on the parcel through ITK workshops or sharing meetings.

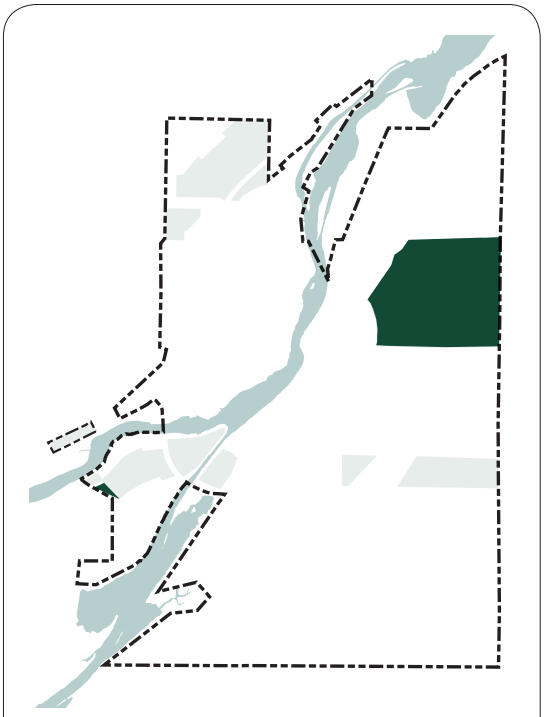
Summary of Constraints

Summary of Preliminary Constraints

The parcel contains significant features (significant woodland) and is 'High Constraint' based on preliminary assessment. Significance and constraint level will be confirmed or refined through site-specific study.

Assessment Parcel: **3D**

General Description



Size: ~42ha

Assessed: 2018-2019

Location: Located on the western side of Douro 9th Line. The TAP is bounded by WCNA to the northwest and includes a small portion of OCWNA within its limits.

Land Cover and Physiography

The parcel is anthropogenic (cultural) in nature and continues to support active agricultural practices (hay fields, fallow fields and research plots) in those areas outside of the OCWNA. A review of imagery suggests that fields in this parcel have gone through a rotation of crops since at least 2006. The only structures on site are small sheds and storage structures used.

A drumlin is located roughly in the middle of the TAP; the drumlin is generally oriented northeast-southwest.

Current Land Use(s) & Site Condition

The parcel consists of nine fields separated by hedgerows. Several of these fields are leased to farmers and are used as hay fields or are fallow. At least one of the fields is used for teaching and research. Natural and naturalized vegetation is limited to small meadow marshes and hedgerows.

The overall condition of this site is (ecologically) poor. This site is very cultural (few natural vegetation communities, structure and low diversity, high percentage of non-natives, dominant presence of highly invasive plants) and has many anthropogenic disturbances, namely ongoing agricultural activity.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Bat acoustic monitoring

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 88

Total non-native plant species: 43

FQI: 15.98 (low value)

Native mean coefficient: 2.53(low value)

Notes:

No provincially or federally ranked, or at-risk flora species occur at this site. Non-native pasture grasses are the dominant species in this parcel. Common Buckthorn (Rhamnus cathartica) is abundant in hedgerows.

Two vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Cultural Meadow (CUM)
- Meadow Marsh (MAM

Each community is generally described below:

1 Cultural Meadow (CUM)

Aster (Heart-leaved Aster, Whit Heath Aster, Calico Aster, New England Aster, Old Field Aster)

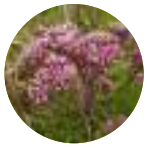
Smooth Brome

Goldenrod

Two of these communities exist in the parcel. They are dominated by herbaceous vegetation (~100% cover) with few to no trees or shrubs. Vegetation is dominated by non-native pasture grasses such as Smooth Brome (Bromus inermis) as well as an abundance of asters (Symphyotrichum spp.) and goldenrods (Solidago spp.).

2 Meadow Marsh (MAM)

Reed Canarygrass



Spotted Joe Pye Weed

Swamp Aster

Red-osier Dogwood

One meadow marsh community exists in the parcel. It is dominated by herbaceous vegetation (~90% cover) with few to no trees and shrubs (~10% cover). The dominant groundcover species in this community is Reed Canary Grass (Phalaris arundinacea) with abundant Spotted Joe-Pye-weed (Eutrochium maculatum) and Swamp Aster (Symphyotrichum puniceum). The dominant species in the understory layer is Red-osier Dogwood (Cornus sericea).

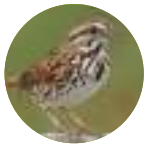
Wildlife

Birds

Number of species: 21

Species Assemblange: Species observed were habitat-generalists, capable of nesting in a wide variety of large and small forests, wetlands and cultural communities in southern Ontario

Common species:


Song Sparrow


House Wren


American Goldfinch

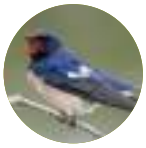

Chipping Sparrow


Black-capped Chickadee

At risk species:


Bobolink


Eastern Meadowlark


Barn Swallow

Mammals

Number of Species: 6

Species Assemblange: Evidence of Red Fox and White-tailed Deer were found on this parcel, species common among urban and rural natural areas

Common species:


White-tailed Deer


Red Fox

Other species: No vegetation community / ecosite were identified as potential bat habitat (in accordance with MNRF protocols). There are no vegetation communities that meet the requirements for identification as maternity habitat present on TAP 3D; as such, it is assumed that the TAP is used for foraging purposes.

Insects

Number of Species: 3

Species Assemblage: Insects were documented incidentally and observations are representative, not comprehensive. Those species observed are common in Ontario. Low diversity of native vegeation is expected to reduce overall native insect diversity.

Wildlife

Fish

Number of Species:	N/A
Species Assemblage:	Two intermittent watercourses occur on 3D. The more northern watercourse on TAP 3D appears to originate as a headwater drainage feature/agricultural swale north of the property. It traverses the TAP along/within a hedgerow in a southerly direction, becoming a mapped, intermittent watercourse in the middle of the hedgerow on site. The watercourse flows through a small meadow/meadow marsh community at the southern terminus of the hedgerow, then flows west into a channelized ditch along the north edge of the East Bank Drive parking lot. It appears to then drain into a stormwater management pond and ultimately into the Otonabee River after crossing under the Rotary Greenway Trail and Nassau Mills Road. In consideration of the short length of the watercourse, incising (erosion) and limited evidence of channel definition through much of its length, it is anticipated that this watercourse provides conveyance of surface water during storm events and spring melt; it is not expected to provide direct fish habitat. Outletting to the stormwater management facility before reaching the Otonabee River, the functional contributions of the intermittent watercourse to the River are anticipated to be limited to volumes as controlled by the stormwater facility. The second watercourse within 3D originates as a headwater drainage feature in the Experimental Farm & Market Gardens and gathers into one intermittent channel, which marks the northern extent of the Otonabee College Wetland Nature Area (OCWNA). The watercourse flows in a southwesterly direction through a small meadow marsh community which transitions into a thicket/cultural wooded area and continues southwesterly to the Mackenzie House. From the Mackenzie house, the watercourse is directed south under Pioneer Road in the area of Kawartha Camp and 4B. Within the OCWNA the watercourse is not defined and appears to be maintained by the creation of an agricultural swale and earth movement for the development of the Trent Core Campus. Therefore, it is anticipated that this watercourse provides conveyance of surface water during storm events and spring melt, and it is not expected to provide direct fish habitat.

Indigenous Traditional Knowledge

ITK engagement sessions identified the presence of deer habitat and deer movement corridors through 3D. No other traditionally important areas were identified. Eastern white cedar, riverbank grape, white elm, climbing bittersweet, staghorn sumac, white ash, red ash, common plantain, great mullein and aster species were identified as occurring in the parcel and were identified in TK for medicinal, sacred and / or resource purposes.

Valued Traditional Knowledge Species:

Sixteen (16) species / species groups were identified as occurring on the parcel through ITK workshops or sharing meetings (ITK section above). Additional species identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program. The complete list of species with TK significance is provided below:


Eastern White Cedar


Riverbank Grape


White Elm

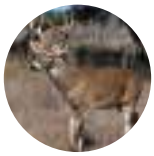

Climbing Bittersweet


Staghorn Sumac


Ash Species (White, Red)


Common Plantain


Aster Species (Heart-leaved, White Heath, Calico, New England, Old Field, Aster Sp.)


White-tailed deer

Significant Features & Areas

Provincially Significant Wetlands (PSW)

A small portion of the Nassau Mills Wetland Complex enters the southern edge of 3D (within the OCWNA).

Significant Wildlife Habitat (SWH)

No Candidate Significant Wildlife Habitat was identified in TAP 2E.

Species at Risk (SAR) & Species of Conservation Concern (SCC)

Bobolink and Eastern Meadowlark breed in hay fields and cultural meadows in this parcel. Note that agricultural activities are exempt from ESA regulations and ongoing agricultural activity is still permitted in this parcel.

Bat acoustic recording captured four vocalizations from a Myotis species; these species are listed as Endangered under ESA 2007 (Provincial). All myotis species (Little Brown Myotis, Eastern Small-footed Myotis, Northern Myotis) are federally listed as Endangered under SARA 2004. Based on the lack of suitable habitat for maternity roosting, it is assumed that the site is primarily used for foraging.

There is potential for the parcel to provide habitat for Monarchs because milkweed plants grow in meadows and hedgerows. Habitat opportunities are currently limited to fringe areas associated with these areas.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

No areas of potential significance to Indigenous Peoples were identified through knowledge sharing workshops and walks in 3D.

Summary of Constraints

Summary of Preliminary Constraints

The parcel is predominantly identified as 'Low / No Constraint' as it does not contain significant, protected or candidate significant features. One small area of 'High Constraint' is identified associated with the small portion of the Nassau Mills Wetland Complex that extends into the TAP. It is noted that this occurs within the limits of OCWNA. Agricultural practices are exempt from the prohibitions of Sections 9 and 10 of the ESA for Eastern Meadowlark and Bobolink; consideration should be given to these species through future planning stages and the TLNAP.

Assessment Parcel: **4B**

General Description

Size: ~11ha

Assessed: 2018-2019

Location: 4B is divided into two sub parcels. 4B West is a small triangle located south of Pioneer Road and surrounded by WSNA. 4B East is located south of Pioneer Road and west of Douro 9th Line.

Land Cover and Physiography

4B East consists almost entirely of natural land cover. 4B West is anthropogenic (cultural) in nature and continues to support active agricultural practices (hay fields). There is a house, barn and several outbuildings on 4B (east). At the time of writing, these buildings were identified as occupied.

Current Land Use(s) & Site Condition

4B West is natural in aspect and consists entirely of forest communities. The area shows limited sign of recent anthropogenic use / impact. TAP 4B East is primarily agricultural and continues to be actively used for agriculture. The eastern limit of the TAP includes small portions of larger natural vegetation communities that extend to the south and west. Features at this eastern end include cultural meadow and portions of wetland communities. Overall, the 4B East shows signs of this land use and recent and ongoing anthropogenic use.

Natural Heritage Surveys Conducted On-Site

Ecological Land Classification (ELC)
Three-season flora inventory
Breeding bird surveys
Bat acoustic monitoring

Vegetation & Vegetation Communities

Natural Heritage Description

Total floral species: 53

Total non-native plant species: 9

FQI: 24.68 (low value)

Native mean coefficient: 3.85(medium value)

Notes:

No provincially or federally ranked, or at-risk flora species occur at this site. Non-native pasture grasses are the dominant species in this parcel. Common Buckthorn (Rhamnus cathartica) is abundant in hedgerows.

Five vegetation communities, defined using Ecological Classification for Southern Ontario (Lee et al. 1998) occur in this parcel:

- Coniferous Forest (FOC)
- Deciduous Forest (FOD)
- Cultural Meadow (CUM)
- Deciduous Swamp (SWD)
- Shallow Marsh (MAS)

Each community is generally described below:

1 Coniferous Forest (FOC)

Northern White Cedar

Two coniferous forest communities cover approximately three-quarters of 4B West. This forest is characterized by a near monoculture of Northern White Cedar (Thuja occidentalis) in the canopy, subcanopy and understory. There is virtually no groundcover vegetation.

2 Deciduous Forest (FOD)

White Elm

A narrow deciduous forest community bisects 4B West in an area of lower topography between two coniferous forest communities. The deciduous forest is dominated by White Elm (Ulmus americana).

3 Cultural Meadow (CUM)

Smooth Brome

There is a small cultural meadow community at the far western end of 4B East. This community is characterized by little to no tree and shrub cover and groundcover dominated by cool season pasture grasses such as Smooth Brome (Bromus inermis).

Vegetation & Vegetation Communities

4 Deciduous Swamp (SWD)


Willow Species


Dogwood Species


Canada Bluejoint


Black Ash

A small deciduous swamp is located at the far eastern edge of 4B East immediately adjacent to Douro 9th Line. This swamp is dominated by willows (Salix spp.) in the canopy and subcanopy, with dogwoods (Cornus spp.) abundant in the understory and Canada bluejoint (Calamagrostis canadensis) abundant in the groundcover. There is a large Black Ash (Fraxinus nigra) in this community, which is a noteworthy tree since it has so far escaped the effects of invasive Emerald Ash Borer.

5 Shallow Marsh (MAS)


Willow Species


Dogwood Species


Narrow-leaved Cattail

Two shallow marsh communities occur on the far eastern edge of 4B East to the north and south of the deciduous swamp. These communities are characterized by sparse tree and shrub cover (<10%) dominated by willows and dogwoods and groundcover dominated by Narrow-leaved Cattail (Typha angustifolia).

Wildlife

Birds

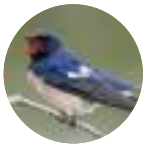
Number of species: 33

Species Assemblange: Most of the bird species heard in 4B during breeding bird surveys were in 4B West or in the surrounding natural area (WSNA). Birds heard in 4B East were primarily generalist species capable of breeding in a variety of habitats and often found in proximity to humans

Special Concern species:


Wood Thrush


Eastern Meadowlark


Barn Swallow

Mammals

Number of Species: 4

Species Assemblange: Evidence of Red Fox and White-tailed Deer were found on this parcel, species common among urban and rural natural areas

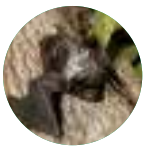
Common species:


White-tailed Deer

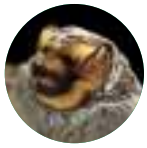

Red Fox

Other species: Forested communities associated with TAP 4B West provide suitable habitat for SAR bat habitat (in accordance with MNRF protocols). Forest communities do not meet the requirements for consideration under SWH criteria.


Big Brown Bat


Silver-haired Bat


Eastern Red Bat


Hoary Bat

Insects

Number of Species: 3

Species Assemblage: Insects were documented incidentally and observations are representative, not comprehensive. Those species observed are common in Ontario. Low diversity of native vegeation is expected to reduce overall native insect diversity.

Wildlife

Fish

Number of Species: N/A

Species Assemblage: The intermittent watercourse that originates in 3D runs southernly towards Pioneer Road and crosses under the road continues south on the western edge of 4B. This unnamed intermittent watercourse continues southwest towards University Road where it connects with other small watercourses and ultimately flowing westerly into the Otonabee River through the Wildlife Sanctuary Nature Area (WSNA) and Canal Nature Area (CNA). In the extent of 4B, the watercourse appears to convey surface water during storm events and spring melt, and it is not expected to provide direct fish habitat.

The second watercourse, a permanent watercourse referred to as the Trent University Tributary by the City of Peterborough, flows along the western limit of the 4B easterly parcel. Originating northeast of 4B, in a succession of three forested swamp communities, the watercourse flows southwesterly under Douro 9th Line. From Douro 9th Line the watercourse continues southwesterly across agricultural fields and is supported by a narrow riparian corridor until Pioneer Road. In this area, open flowing water occurs; however, no fish species were documented in spring visual encounter surveys. Sections of this riparian area are completely dominated by vegetation, and it is unlikely fish have continued passage. The watercourse crosses under Pioneer Road through a concrete culvert and into a meadow marsh within/immediately adjacent to 4B. In the meadow marsh, water was present at the time of field surveys; however, fish habitat was not present as vegetation dominated. Downstream of TAP 4B, the watercourse flows into a large woodland/wetland complex in the WSNA, connecting with other small watercourses and ultimately flowing westerly into the Otonabee River through the CNA. It is not believed that fish are present in this upstream section of the watercourse.

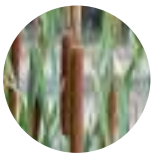
Indigenous Traditional Knowledge

Deciduous forests and swamps in 4B contain Black Ash and Silver Maple, which are traditionally important trees. Turtle movement corridors and deer movement corridors traverse both 4B West and 4B East. No other sites or areas were specifically identified within TAP 4B through ITK engagement sessions. Eastern White Cedar, cattails, Riverbank Grape, White Elm, Paper Birch, Silver Maple, ash species and Purple-stemmed Aster were identified as occurring in the parcel and were identified in TK for medicinal, sacred and / or resource purposes.

Valued Traditional Knowledge Species:

Eleven (11) species / species groups were identified as occurring on the parcel through ITK workshops or sharing meetings (ITK section above). Additional species identified on other parcels or through dialogue and knowledge sharing as having TK significance were observed as occurring on the parcel through the field survey program. The complete list of species with TK significance is provided below:


Eastern White Cedar


Narrow-leaved Cattail


Riverbank Grape

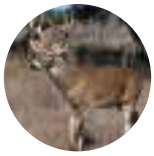

Wild Strawberry


White Elm


Paper Birch


Ash Species (White, Red)


Purple Stemmed Aster


White-tailed deer

Significant Features & Areas

Provincially Significant Wetlands (PSW)

A small portion of the Nassau Mills Wetland Complex enters the western edge of 4B East.

Significant Wildlife Habitat (SWH)

Candidate SWH includes:

- Woodland Area-sensitive Bird Breeding Habitat (associated with 4B West only)
- Special Concern and Rare Wildlife Species (Wood Thrush [4B West], Monarch)

Species at Risk (SAR) & Species of Conservation Concern (SCC)

Eastern Meadowlarks may use 4B East as foraging habitat. This species was not observed on the site during breeding bird surveys. Note that agricultural activities are exempt from ESA regulations and ongoing agricultural activity is still permitted in this parcel. Barn Swallow were observed foraging and may nest on anthropogenic structures found in 4B East.

Wood Thrush breeds in forests associated with 4B West. There is potential for the parcel to provide habitat for Monarchs because milkweed plants grow in meadows and hedgerows.

No other SAR or SCC were observed on the parcel during field surveys or identified within the parcel through secondary sources (i.e., social pinpoint, iNaturalist, etc.).

Significant Indigenous Features & Areas

No areas of potential significance to Indigenous Peoples were identified through knowledge sharing workshops and walks in 4B.

Summary of Constraints

Summary of Preliminary Constraints

As described, 4B is divided into two sub parcels: 4B West and 4B East. Based on preliminary assessments of the natural heritage report, parcel 4B West contains significant woodland and identified as 'High Constraint' through preliminary assessment.Parcel 4B East is considered predominantly 'Low / No Constraint'. A small area along the eastern edge of 4B East is 'High Constraint' and a small portion on the western edge is 'Moderate Constraint' based on the presence of wetlands and other features. Significance and constraints will be confirmed or revised through site-specific study.

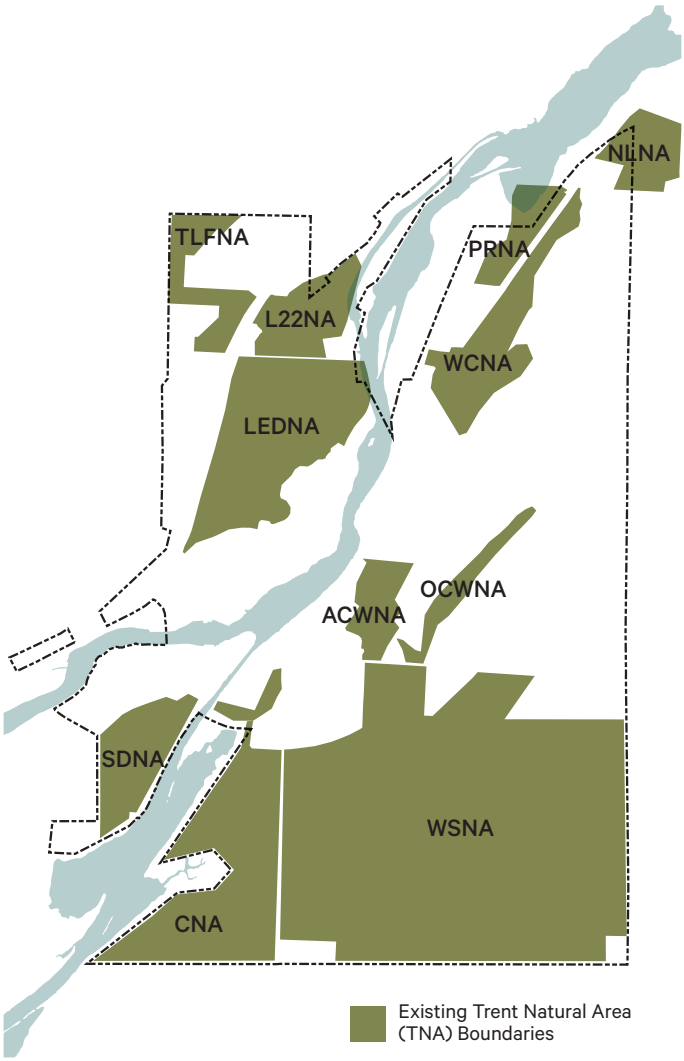
Appendix B:
Trent Nature Area (TNA) Summary Sheets

B. Trent Nature Area (TNA) Summary Sheets

The Trent Lands and Nature Areas Plan is to provide an update to *The Stewardship Plan for Trent University Nature Areas* (2002) with respect to the description of the TNAs, current uses and areas of significance, and confirm, refine or recommend updated classification and zoning to inform ongoing management of these land parcels. Secondary source data (e.g., Social Pinpoint, aerial photography) was the primary source of information to update TNA descriptions and stewardship plan(s). Much of the description for the TNAs from the 2002 Stewardship Plan remains valid and has been integrated into the summary sheets to provide a reasonably comprehensive description of the TNAs.

To facilitate review and consideration of each TNA individually, summary sheets containing a general description of current conditions (location, regional & local context, biophysical description, cultural features, ITK), current uses (education & research, interpretation, recreation, adjacent land uses, traditional uses), known management issues. These summary sheets have been used to inform **Phase 2** of the Trent Lands and Nature Areas Plan, which included the TNA Stewardship Plan update.

The Summary Sheets were developed based on existing TNA boundaries as these represent the boundaries used in the assessment process. Revisions to TNA boundaries may be considered through Phase 2 of the Trent Lands Plan if / as appropriate.



Acronyms

TAP	Trent Assessment Parcel
ITK/TK	Indigenous Traditional Knowledge/ Traditional Knowledge
TNA	Trent Nature Area
ELC	Ecological Land Classification
PSW	Provincially Significant Wetlands
SAR	Species at Risk
SCC	Species of Conservation Concern

TNA: **Archaeology Centre Wetland Nature Area (ACWNA)**

General Description

Size: 5.5 ha (14 acres)

Updated: 2018-2019

Location: In the center of the Trent Symons Campus, located north of Pioneer Road and south of Peter Gzowski College. The ACWNA is comprised of a wetland and coniferous forest. The Rotary Greenway Trail occurs to the west of the ACWNA.

Regional & Local Context

The ACWNA is situated within in a primarily recreational (recreation fields and university) context. The Otonabee Waterway is approximately 200m to the west. ACWNA is functionally connected to the Canal Nature Area, Wildlife Sanctuary Nature Area, and Otonabee College Wetland Nature Area. Collectively, these areas represent a relatively contiguous connection between natural features (woodland, wetland) and the Otonabee River. The TNAs are separated by existing infrastructure (roads) on the landscape (Pioneer Road and East bank Drive).

Biophysical Description

ACWNA is generally comprised of three main vegetation communities: coniferous forest, cultural woodland, and wetland (meadow marsh, shallow marsh, and coniferous swamp). The forest occurs along the west of the property and the wetland is adjacent along the east. The cultural woodland is located in the north-west corner. The 2002 Lands Plan noted that cattails are dominating the wetland and that the hydrology of the area is unknown.

Significant Features and Areas

Several Amphibian species breed successfully in the ACWNA (it is unknown where amphibian's complete other life stages). There is a low potential for bats, as the wooded areas are dominated by coniferous trees (deciduous trees are preferred); use by bat species is anticipated to include foraging associated with the wetland. Wildlife movement between WSNA and surrounding TNA occurs. White-tailed Deer are noted to cross Pioneer Road by the community, and it is likely that other wildlife also crosses the road.

Candidate Significant Wildlife Habitat is present on the TNA and includes:

- Amphibian Breeding Habitat (Woodland and Wetland)
- Marsh Bird Breeding Habitat
- Turtle Nesting Habitat
- Special Concern and Rare Wildlife Species

The wetland is a part of the Nassau Mills Provincially Significant Wetland Complex.

Cultural Features

In the cultural vegetation communities in the north of the site a tipi is erected. All students have the freedom to access the tipi and seminars and ceremonial events are hosted within.

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the ACWNA are considered a significant feature. Wildlife movement is identified through the southern portion of ACWNA, connecting features to the east and south of the TNA associated with the OCWNA and WSNA.

Current Uses

Education and Research

The Traditional Area is located in close proximity to ACWNA and the TNA provides opportunities to connect students to areas of traditional use. Research and teaching identified through engagement events include:

- Indigenous Studies & Education: Indigenous Knowledge on the Land (Teaching)
- Geography: Snow & Ice (Teaching)

Interpretation

No known interpretative signage (information, directional, etc.) occurs on the ACWNA.

Recreation

The Rotary Greenway Trail occurs to the west of the ACWNA.

Adjacent Lands and Land Uses

Much of the surrounding lands near ACWNA are natural or naturalized with OCWNA and WSNA separated from the ACWNA by roads.

Built university campus areas occur to the north of the TNA with paved parking areas the primary adjacent land cover in that area. To the west, a recreational area is the intervening land use between the TNA and the waterway. To the east and separated by a roadway, OCWNA is a dominant feature with natural land cover types. Pioneer Road divides the ACWNA from the WSNA.

Indigenous Traditional Uses

No areas or specific features were identified on the CNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources.

A site of cultural significance was identified on or in proximity to the ACWNA .

Wetlands present on the ACWNA are identified as culturally important features in traditional knowledge teachings.

[1]Specific location(s) and use(s) are not included to protect culturally significant sites.

TNA: **Canal Nature Area (CNA)**

General Description

Size: 36.8 ha (91 acres)

Updated: 2018-2019

Location: The CNA is in the south-central portion of the Trent Symons Campus, generally located south of the Nassau Mills Road bend and TAP 1B. CNA is west of University Road and east of the Otonabee Canal.

Regional & Local Context

The CNA is in a primarily regenerating natural area and agricultural land use context. Trent Symons Campus is located to the north and University Road bounding CNA to the east is heavily used to access the campus. The CNA is functionally connected to WSNA, ACWNA, OCWNA with relatively contiguous natural cover between these TNAs; University Road and Pioneer Road separate the TNA. Collectively, these areas represent a relatively contiguous connection between natural features (woodland, wetland) and the Otonabee River.

Biophysical Description

The northern portion of the CNA is forest (FO) and swamp (SW) communities. A watercourse originating at University Road runs southwest towards the Otonabee Waterway and outlets to an inlet marsh. The southern portion of the CNA has rolling topography and is dominated by successional dense cedar stands, elsewhere Black Locust and other successional deciduous species are dominating. The 2002 Stewardship Plan noted that Eastern White Cedar was spreading, and that Black Locust was colonizing the northern slope. The Stewardship Plan also noted that the southern Drumlin and other lowland areas should be managed for invasive species.

Significant Features and Areas

Based on work completed on adjacent TAPs it is anticipated that bats, including potential presence and use by Species at Risk (SAR) bats, use the CNA; use by bat species is anticipated to include foraging associated with the wetland and riparian areas along the unnamed watercourse and foraging and/or roosting in the wooded areas where suitable cavity trees are present. The inlet marsh is likely used by various wildlife species, including turtles, amphibians, and snakes, for foraging, breeding and overwintering.

Confirmed Significant Wildlife Habitat:

- Special Concern and Rare Wildlife Species (Snapping Turtle, Special Concern Species)

Candidate Significant Wildlife Habitat:

- Raptor Wintering (Feeding and Roosting) Areas
- Bat Maternity Colonies
- Turtle Wintering Areas
- Waterfowl Nesting Area
- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat
- Woodland Raptor Nesting Habitat
- Turtle Nesting Habitat
- Amphibian Breeding Habitat (Woodland and Wetland)
- Marsh Bird Breeding Habitat

It is noted that Pileated Woodpecker, an area sensitive bird species, has been known to occur on SDNA. This species is an indicator for SWH (Woodland Area-Sensitive Bird Breeding Habitat); however, neither SDNA nor CNA individually meet the minimum interior habitat conditions required to be identified as candidate habitat for this SWH type. Proximity to the CNA and the interactions and functional connection between these two TNAs may allow the SDNA and CNA to support interior habitat species that require these larger natural areas.

The wetlands occurring on site are a part of the Nassau Mills Provincially Significant Wetland Complex.

Cultural Features

No known cultural heritage sites occur on the CNA.

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the CNA are considered a significant feature.

Current Uses

Education and Research

The 2002 Stewardship Plan documents the EMAN Tree Watch Program occurring. The program could be continued to document long-term change within the TNA.

Research and teaching identified through engagement events include:

- Geography: Snow & Ice

Interpretation

There is signage located at the trail head on University Road. Directional signage occurs along trails. It is unknown if other interpretative signage is present within the TNA.

Recreation

Official / sanctioned trails occur throughout the CNA: John de Pencier Trail, Morton Family Trail, and unnamed trails. Trails are used for hiking, walking, and cross-country skiing.

Adjacent Lands and Land Uses

The CNA is situated within a primarily rural/recreational landscape context with agricultural land uses bounding the TNA to the south. To the east is the WSNA and to the west is the Otonabee Waterway. The north is bounded by roads and Core Campus.

Indigenous Traditional Uses

No areas or specific features were identified on the CNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources. Wetlands present on the CNA are identified as significant features in traditional knowledge teachings.

TNA: **Lock 22 Nature Area (L22NA)**

General Description

Size: 9.8 ha (24 acres)

Updated: 2018-2019

Location: The L22NA is in the northwestern portion of the Trent Symons Campus, generally located east of Lakefield Road and north of Woodland Drive. The L22NA is comprised of wooded and wetland vegetation communities.

Regional & Local Context

The L22NA is in a rural landscape context which is experiencing urban expansion. Along Lakefield road are small commercial developments as well as residential housing. The Robert G. Lake Generating Station occurs within L22NA and Parks Canada Lock 22 is adjacent to the power station. The West Bank Drive parking lot for Trent University is south of L22NA. The main university campus is located south of the L22NA separated primarily by additional natural areas and feature (Lady Eaton Drumlin Nature Area, LEDNA).

The L22NA is connected to TLFNA by an unnamed watercourse that flows through the TLFNA downstream to L22NA and relatively contiguous natural cover between these TNAs; Lakeview Road separates these two TNAs. The L22NA is functionally connected to LEDNA and Highway 28 Woods. Collectively, these areas represent a relatively contiguous connection between natural features (woodland, wetland) and the Otonabee River. The TNAs are separated by existing infrastructure (roads) on the landscape (Lakeview Road / Water Street, Woodland Drive).

Biophysical Description

The northern portion of the L22NA is a forest community (FO), separating residential development from the Otonabee Waterway. The southern portion of L22NA is comprised of wetland (marsh [MA] and swamp [SW]) and forested areas that support a variety of wildlife species. The topography of L22NA is relatively flat with no substantive increases or decreases in elevation. L22NA has not experienced as extensive an agricultural influence / history as other TNA and TAP. The wetland at L22NA was fragmented from the wetlands to the west and south when the roads where constructed.

Significant Features and Areas

Based on work completed on adjacent TAPs there is moderate potential for use by bats, with a focus in the mixed forest communities (FOM) in areas where suitable cavity trees may occur, and for roosting and more open habitats (e.g., CUM, MAM) for foraging.

Candidate Significant Wildlife Habitat:

- Bat Maternity Colonies
- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat
- Turtle Nesting Habitat
- Amphibian Breeding Habitat (Woodland and Wetland)
- Marsh Bird Breeding Habitat
- Special Concern and Rare Wildlife Species (Monarch)

The wetland is 'unevaluated'; as such its status has not been assessed against standard protocols for evaluating wetland(s) for provincial significance.

Cultural Features

No known cultural heritage sites occur on the L22NA.

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the L22NA are considered a culturally important feature.

Current Uses

Education and Research	No educational or research sites are known to occur on the L22NA.
Interpretation	No known interpretative signage (information, directional, etc.) occurs on the L22NA.
Recreation	One official / sanctioned trail runs north south along the Otonabee Waterway.
Adjacent Lands and Land Uses	The L22NA is in a changing rural landscape context with TNA and the Otonabee Waterway bounding it, however, with adjacent residential uses expanding. To the east is the waterway with the power station and lock while to the west is the TLFNA across Lakefield Road. South across Woodland Drive is LEDNA and north in the Selwyn Township is existing residential and commercial development. The main university campus is located south of the L22NA separated primarily by additional natural areas and features.
Indigenous Traditional Uses	No areas or specific features were identified on the TLFNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources.

TNA: **Lady Eaton Drumlin Nature Area (LEDNA)**

General Description

Size: 29.2 ha (72 acres)

Updated: 2018-2019

Location: The LEDNA is west of the Trent Symons Campus, generally located east of Water Street and south of Woodland Drive. Lady Eaton College and West Bank Drive is adjacent to the east. A utility corridor bisects the natural area.

Regional & Local Context

The LEDNA is situated in a recreational and residential context. Across Water Street to the west are residential homes and the Trent Symons Campus follows the east boundary of the Nature Area. The LEDNA is functionally connected to Total Loss Farm Nature Area (TLFNA) and Lock 22 Nature Area (L22NA). Collectively, these areas represent a relatively contiguous connection between natural features (woodland, wetland) and the Otonabee River. The TNAs are separated by existing infrastructure (roads) on the landscape (Water Street, Woodland Drive).

Biophysical Description

The LEDNA is a mostly wooded drumlin feature. The northern portion contains a utility corridor, which through maintenance, is cultural meadow underneath. The southern portion of the drumlin is plantation and was likely planted in the 70's. Social Pinpoint data indicates that the naturally wooded area is a maple and ironwood canopy with a trillium understory in the spring. Along Water Street regular road maintenance results in edge effects creating a sumac thicket area and the channeling of water creates wetland pockets.

Significant Features and Areas

Based on work completed on TAP within the Trent Lands, it is anticipated that bats, including potential presence and use by Species at Risk (SAR) bats, use LEDNA. Use by bat species, if present, is anticipated to include foraging associated with cultural meadow (CUM) and marsh (MAM) communities and/or roosting in the wooded areas where suitable cavity trees are present.

A community member identified that Butternut occurs in the LEDNA (Social Pinpoint).

Candidate Significant Wildlife Habitat (SWH) on site:

- Raptor Wintering (Feeding and Roosting) Areas (Hawks & Owls, Bald Eagle)
- Bat Maternity Colonies
- Bald Eagle and Osprey Nesting, Foraging and Perching habitat
- Special Concern and Rare Wildlife Species (Monarch)

Cultural Features

A community member indicates that remnants of the Nassau Mills ski hill (pre-dates the University) can be found within the LEDNA.

Indigenous Traditional Knowledge

No sites or areas were specifically identified within the LEDNA through ITK engagement sessions.

Current Uses

Education and Research

The 2002 Stewardship plan states that the LEDNA is used intensively for undergraduate teaching in Biology, Geography and Environmental Science. The LEDNA is a destination for ornithology students.

Research and teaching identified through engagement events include:

- Biology – Education (Teaching)
- Biology: Plant Ecology (Research, Teaching)
- Indigenous Environmental Studies: Indigenous and Western Science Systems (Forestry) (Teaching)

Interpretation

No known interpretative signage (information, directional, etc.) occurs on the LEDNA.

Recreation

Official / sanctioned trails occur on the LEDNA.

Adjacent Lands and Land Uses

The LEDNA is set it a residential and recreational context with residential dwellings and the core of Trent University occurs adjacent to the TNA.

Indigenous Traditional Uses

No sites or areas were specifically identified within LEDNA through ITK engagement sessions. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources. Wetlands present on the LEDNA are identified as significant features in traditional knowledge teachings.

TNA: **Otonabee College Wetland Nature Area (OCWNA)**

General Description

Size: 4.5 ha (11 acres)

Updated: 2018-2019

Location: The OCWNA covers approximately 5 ha and extends 760m north from Pioneer Road. It is located east of Mackenzie House, the Archaeological Research Centre, Otonabee College Residences and the DNA Building and is accessible from the future Cleantech Commons site further to the east. The OCWNA is comprised of an isolated narrow wetland which outlets through a culvert under Pioneer Road into the Wildlife Sanctuary.

Regional & Local Context

The OCWNA is a narrow wetland bounded at the northwest by the main campus urbanized land uses (residential development and academic buildings) and to the east by the agricultural fields and the future Cleantech Commons Research and Innovation Park. To the north, of the OCWNA are agricultural fields and the Trent Vegetable Garden. The ACWNA is located west of the OCWNA at the southern portion of the TNA and they are separated by Mackenzie House and East Bank Drive. The CNA and WSCA occur to the south, across Pioneer Road.

Biophysical Description

At the northern portion of the OCWNA a steep slope to the DNA building occurs and the east land use is agricultural. The slope appears to have substantive anthropogenic influence and the vegetation is cultural in nature. Agricultural fields to the east have created a drainage ditch that follows the steep slope. This drainage ditch created wetland features along the slope. In the southern portion of the OCWNA the Mackenzie House and associated parking lot occur and to the east is the Clean Tech Commons.

Significant Features and Areas

Based on work completed on adjacent TAPs there is potential for bats, including potential for Species at Risk (SAR) bats, in the OCWNA.

Significant Wildlife Habitat potential on site includes:

- Bat Maternity Colonies
- Turtle Nesting Habitat
- Special Concern and Rare Wildlife Species (Monarch)

The OCWNA wetland has been included in the Nassau Mills Provincially Significant Wetland Complex.

A community member identified that the OCWNA is a good location to see breeding birds in March.

Cultural Features

No known cultural heritage sites occur on the OCWNA.

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the OCWNA are considered a significant feature.

Current Uses

Education and Research

According to community information the area around OCWNA is used during field trip in Environmental History course as it presents several different "layers" of campus history: glacial erratics, abandoned farm field/pasture, old fence, line of cedars, institutional lawn.

Research and teaching identified through engagement events include:

- Environmental and Resource Science – Environmental History (Teaching)

The following research and teaching are identified close to, but outside of the TNA:

- Biology: Plant Ecology & Evolution (Research)
- Biology: Ornithology (Research)
- Biology: General (Teaching)

Interpretation

No known interpretative signage (information, directional, etc.) occurs on the OCWNA.

Recreation

No official / sanctioned trails or recreational activities occur on the OCWNA.

Adjacent Lands and Land Uses

The OWCNA is an example of an inter-drumlin swale which provides habitat for amphibians. Graduate research on amphibian ecology has been conducted in the area. There is residential development and academic buildings (DNA Building and Life and Health Sciences Complex) in proximity to the northwest section of the TNA. The future Cleantech Common Research and Innovation Park will be constructed in the agricultural fields directly to the east with an appropriate buffer. The Archaeological Research Centre and Mackenzie House are located west of the OCWNA in the south portion of the TNA.

Camp Kawartha Environment Centre is located on the south side of Pioneer Road south of the OCWNA. The Centre showcases green innovation and alternative energy.

Indigenous Traditional Uses

No areas or specific features were identified on the OCWNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources. Wetlands present on the OCWNA are identified as significant features in traditional knowledge teachings.

TNA: **Ninth Line Nature Area (NLNA)**

General Description

Size: 7.1 ha (18 acres)

Updated: 2018-2019

Location: NLNA is in the northernmost portion of the Trent Lands and is bounded by Douro 9th Line to the east, the Rotary Greenway Trail and Nassau Mills Road to the west and north and agricultural lands to the south.

Regional & Local Context

Located at the north edge of the Trent Lands, NLNA is located within an agricultural context with active agricultural land uses occurring immediately south of the TNA and to the east of Douro 9th Line. Located adjacent to the Otonabee River, the TNA has a landscape and general connection to that broader feature.

NLNA is located approximately 100m northeast of both the PRNA and WCNA with an intervening area of cultural meadow (CUM). These areas are anticipated to be functionally connected across the local landscape for a range of species. A small watercourse also flows in a southerly direction originating north of NLNA and flowing into WCNA, enhancing the connection between these TNAs. Three small areas of cultural meadow (CUM) are present throughout the TNA.

Biophysical Description

Topography within NLNA is flat or slightly rolling. Two forested areas (FOC and CUW) occupy much of the TNA with a wetland (MAM) situated between them in an area of slightly lowered elevation. The wetland is at least partially supported by a watercourse originating to the northeast of the parcel and generally directing flow in a southerly direction, towards WCNA.

Significant Features and Areas

NLNA is documented in the 2002 Stewardship Plan as historically forming a portion of the nesting territory for a pair of Great-horned Owls. Features present are anticipated to offer habitat opportunities for a range of small mammals, bird and insect species. An unidentified salamander species was recorded in the marsh community and the marsh was identified as appearing to have a higher diversity than other wetlands within the campus (2002 Stewardship Plan). Recent records of blue-spotted salamander breeding occur <1km to the south in WCNA (SER-TU 2020) and records of blue spotted salamander associated with PRNA were identified on iNaturalist.

Candidate Significant Wildlife Habitat:

- Bat Maternity Colonies
- Amphibian Breeding Habitat (Woodland and Wetland)
- Special Concern and Rare Wildlife Species (Monarch)

The wetland within the NLNA is 'unevaluated'; as such its status has not been assessed against standard protocols for evaluating wetland(s) for provincial significance.

Cultural Features

No known cultural heritage sites occur on the NLNA.

Indigenous Traditional Knowledge

Forested areas within NLNA are identified as a wild turkey wintering area. Although not within the NLNA, the Otonabee River is located in close proximity and is connected to NLNA; the Otonabee River provides habitat for turtles, waterfowl and many species of fish. Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. The wetland present on the NLNA are considered a significant feature.

Current Uses

Education and Research

The 2002 Stewardship Plan indicates that a pond within the NLNA has been used for graduate research on amphibians.

No research and teaching locations were identified within the TNA through engagement events. However, the following research and teaching are identified close to, but outside of the TNA:

- Biology: Fish Ecology (Teaching) (2 locations)

Interpretation

An old trail sign was identified on Social Pinpoint in the NLNA area. The sign refers to a Ninth Line nature trail; however, the sign is hidden behind cedars and the trail access is blocked by fencing, indicating that the trail is no longer open for use.

No other interpretative signage (information, directional, etc.) is known to occur on the NLNA.

Recreation

No official / sanctioned trails or recreational activities occur on the NLNA. As noted above, it appears as though a nature trail formerly existed on the TNA but is no longer open for use. A fence separates the NLNA from the rail trail.

Adjacent Lands and Land Uses

Lands to the east and south of NLNA are agricultural and continue under active use. Portions of NLNA have been used for grazing and/or other agricultural purposes in its history; it is unclear if these uses persist today based on secondary source information available.

Indigenous Traditional Uses

No areas or specific features were identified on the NLNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources. Wetlands present on the TLFNA are identified as a culturally important features in traditional knowledge teachings.

TNA: **Promise Rock Nature Area (PRNA)**

General Description

Size: 5.1 ha (13 acres)

Updated: 2018-2019

Location: PRNA is located north of the core campus, generally bounded by the Rotary Greenway Trail to the east and Nassau Mills Road to the west and north. Nassau Mills Road separates the PRNA from the Otonabee River with a very narrow strip of land occurring west of the road along the banks of the River.

Regional & Local Context

PRNA (existing parcel boundary) comprises a moderate portion of a larger area of natural vegetation communities extending westerly to the Otonabee River and southerly into WCNA. The Rotary Greenway Trail separates the PRNA from WCNA; these areas maintain a high degree of connectivity on the landscape for many species. As part of a larger area adjacent to the river, PRNA in combination with the broader area provides habitat along the river corridor and habitat for species that use these natural interfaces.

Biophysical Description

PRNA is comprised of an upland and lowland area. The upland area runs along a ridge with the lowland area occurring west of the ridge and gently sloping towards Nassau Mills Road. Water movement is in a generally southerly direction through PRNA (2002 Stewardship Plan). The ridge is generally dominated coniferous forest (FOC) with mixed swamp comprising much of the lowland area. Smaller meadow marsh (MAM) and cultural savannah (CUS) are present along the western and southern portions of the existing PRNA boundary. Small mammals and forest bird species are abundant in the PRNA; two owl species have been observed in the area in 1996, however no record of breeding was provided (Stewardship Plan 2002). Spring Peepers (frog) have been observed with a large (full) chorus (Social Pinpoint) and the area is identified as supporting species of conservation concern (Social Pinpoint); species names were not provided to identify those species referred to.

Significant Features and Areas

The woodland areas on PRNA extend beyond the existing boundary of the PRNA and the composite woodlands are quite large in size and occur in close proximity to the Otonabee River. The 2002 Stewardship Plan also identifies the PRNA as containing a collection of old growth trees (100+ years), which are uncommon in the area. A review of historic air photos in preparation of this updated summary did not flag PRNA for potential Old Growth, however further review may be warranted to determine if candidate habitat for Old Growth exists.

Based on work completed on adjacent TAPs, there is potential for bats to occur on PRNA. The habitats present on PRNA are not as highly suitable to bats compared other woodlands in the Trent Lands; however, this does not preclude use by bats for both foraging and roosting.

Secondary source information includes multiple records of Blue-spotted Salamander including juveniles, in / near PRNA (iNaturalist), including a breeding pool in WCNA (SER-TU 2020), of which the associated amphibian breeding habitat SWH overlaps a small portion of PRNA.

Confirmed Significant Wildlife Habitat:

- Amphibian Breeding Habitat (Woodland)
- Amphibian Movement Corridor

Candidate Significant Wildlife Habitat:

- Bat Maternity Colonies
- Waterfowl Nesting Area
- Bald Eagle and Osprey nesting, foraging and Perching Habitat
- Turtle Nesting Habitat
- Marsh Bird Breeding Habitat
- Special Concern and Rare Wildlife Species (Monarch)

The wetlands occurring on and adjacent to PRNA are 'unevaluated'; as such its status has not been assessed against standard protocols for evaluating wetland(s) for provincial significance.

Cultural Features

Promise Rock Nature Area was given its name because of the presence and use of a large, flat limestone rock near the north end of the property by the Scouting movement during induction ceremonies for new scouts. The area was also the home to the Nassau Scout Camp from 1939 to 1965; former camp buildings, demolished shortly after the lands were acquired by Trent, are still evident as foundations and ruins.

Evidence of former land uses can still be seen, showing evidence of past use for logging, agriculture the scout camp, and an old dump area.

Indigenous Traditional Knowledge

The Otonabee River, north of PRNA, is identified as turtle habitat. The PRNA is also used as a teaching area for the Indigenous community. Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the PRNA are considered a significant feature.

Current Uses

Education and Research

No research and teaching sites were identified within the existing PRNA boundary through engagement events. However, the following research and teaching are identified close to, but outside of the TNA:

- Biology: Fish Ecology (Teaching)

It was noted in the 2002 Stewardship Plan that the PRNA has been used for undergraduate classes (e.g., ecology, forest management).

Interpretation

No known interpretative signage (information, directional, etc.) occurs on the PRNA.

Recreation

PRNA is used for hiking, skiing, nature appreciation and organized nature walks. Some ATV and equestrian use and low levels of ongoing and occasional use by local Scout groups was noted in the 2002 Stewardship Plan.

Adjacent Lands and Land Uses

Lands adjacent to PRNA include contiguous forest and forested wetland communities, the Otonabee River, WCNA and agricultural lands. Land uses include natural vegetation and active agricultural production.

Indigenous Traditional Uses

Turtle habitat is identified in the Otonabee River immediately north of PRNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources.

TNA: **South Drumlin Nature Area (SDNA)**

General Description

Size: 13 ha (3.2 acres)

Updated: 2018-2019

Location: SDNA is located in the southwestern portion of the Trent Lands, generally located between the canal and the Otonabee River. A small portion of SDNA fronts onto Nassau Mills Road; the majority of the TNA is located south and west of TAP 1A and Armour Road.

Regional & Local Context

SDNA is located on a drumlin that rises approximately 15-20m from the canal (2002 Stewardship Plan) and forms a portion of a peninsula between the canal and the Otonabee River. The TNA is separated from the Otonabee by TAP 1A and Armour Road but is directly connected to the canal on its eastern side. Canal Nature Area (CNA) is located immediately across the canal from SDNA and will be functionally connected for some species (e.g., birds). Residential and recreational land uses (golf course) dominate the area south of the TNA.

Biophysical Description

A drumlin is the major topographic feature within the SDNA. Its north (stoss) slope and sides are steep, and the south (lee) slope is gently inclining. A narrow band of flat land separates the drumlin and Trent Canal. The west side of the drumlin is also bordered by flat terrain. A gentle slope extends south from the drumlin to the Thompson Creek lowland (2002 Stewardship Plan).

Vegetation within SDNA is dominated by forest communities, including deciduous forest (FOD) and mixed forest (FOM) and cultural woodland (CUW). The PRNA is generally well drained and does not contain any watercourses. Ephemeral pools are identified as occurring on the north slope (2002 Stewardship Plan). Work to confirm their presence or potential use by breeding amphibians was outside of the scope of work for the TLNAP and should be further investigated in future to assess SWH potential.

Wildlife recorded as occurring in the PRNA and adjacent areas (Otonabee River and CNA) include a range of species that use forest communities and shorelines. Per the 2002 Stewardship Plan, these include: Pileated Woodpecker, Belted Kingfishers, Osprey, Mink, Amphibians (shoreline areas) and insects.

Significant Features and Areas

Although not a designated landform feature, the drumlin is identified as having significant presence and value in the local landscape (2002 Stewardship Plan). It is a prominent feature given its location and provides a high aesthetic and recreation value.

Candidate Significant Wildlife Habitat:

- Raptor Wintering (Feeding and Roosting) Areas (Bald Eagle)
- Bat Maternity Colonies
- Bald Eagle and Osprey Nesting, Foraging and Perching habitat
- Turtle Nesting Habitat
- Amphibian Breeding Habitat (Woodland)
- Shrub / Early Successional Breeding Bird habitat
- Special Concern and Rare Wildlife Species (Monarch, Eastern Wood Pewee)

It is noted that Pileated Woodpecker, an area sensitive bird species, has been known to occur on SDNA. This species is an indicator for SWH (Woodland Area-Sensitive Bird Breeding Habitat); however, neither SDNA nor CNA individually meet the minimum interior habitat conditions required to be identified as candidate habitat for this SWH type. Proximity to the CNA and the interactions and functional connection between these two TNAs may allow the SDNA and CNA to support interior habitat species that require these larger natural areas.

The Otonabee River is a significant feature, providing aesthetic and ecological value (e.g., fish habitat, breeding habitat for amphibians, foraging for a broad range of species, etc.).

Cultural Features

No known cultural heritage sites occur on the SDNA.

SDNA shows evidence of former use for agricultural or cultural purposes (e.g., remnants of cedar rail and barbed wire fencing, degraded herbaceous flora in the woodland). Former cottages, abandoned in the early 1970s, are situated near the base of the slope adjacent to the canal (McLean 1998). Debris and dumping of household materials (e.g. cans, bottles and scattered metal debris) can be found on the mid- to lower parts of the adjacent drumlin slope (2002 Stewardship Plan).

Indigenous Traditional Knowledge

The drumlin that defines much of SDNA is a prominent landform and likely held and / or holds continued significance for Indigenous people of the area.

Traditional knowledge holders identify the shoreline and nearshore areas of the Canal as turtle habitat and specifically identify the area provides habitat for Map Turtle, which is identified as Special Concern under the Ontario Endangered Species Act (ESA 2007).

Current Uses

Education and Research

No teaching or research areas were identified through engagement events as occurring on SDNA.

Several courses have used SDNA for field studies (forest management, plant ecology) in the past. A control plot for the Ecological Monitoring and Assessment Network (EMAN) Project has been set up in the woodland at the top of the drumlin (2002 Stewardship Plan). It is not known if the EMAN plot continues to be monitored.

Interpretation

No known interpretative signage (information, directional, etc.) is known to occur on the SDNA.

Recreation

SDNA contains a network of informal trails that are well used by the Trent community and the public. Primary uses identified through Social Pinpoint include walking, biking and bird watching (birding). Trails offer good viewpoints from the drumlin. Recommendations from Social Pinpoint comments include formalizing management of a trail system through SDNA to manage us and improve user experience (e.g., signage).

Adjacent Lands and Land Uses

SDNA is located between the canal and the Otonabee River. TAP 1A, 1B and 1F are located adjacent to (1A, 1F) or in close proximity to the TNA. To the south of the TNA, residential and recreational (Peterborough Golf and Country Club) land uses dominate the narrow land area between the waterways.

Across the canal (i.e., east of SDNA) and functionally connected to SDNA for some species (e.g., birds) is CNA. Lands across the Otonabee (i.e., west of SDNA) are dominated by residential land uses.

Indigenous Traditional Uses

Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources. The drumlin is a dominant feature and may have had cultural significance and is anticipated to have been used by indigenous peoples of the area. No current uses were identified; however as noted above, the canal is identified as turtle habitat, including Map Turtle (Special Concern).

TNA: **Total Loss Farm Nature Area (TLFNA)**

General Description

Size: 13.3 ha (3.3 acres)

Updated: 2018-2019

Location: The TLFNA is in the northwestern portion of the Trent Symons Campus, generally located west of Lakefield Road and north of Woodland. The TLFNA is comprised of two former agricultural areas (abandoned farm) with the larger portion of the Nature Area (NA) located north of an unnamed watercourse and a small area, connected along the watercourse, to the south.

Regional & Local Context

The TLFNA is in a primarily agricultural and rural landscape context with agricultural land uses bounding the TNA to the north and west. Commercial or light industrial land uses are located along Lakefield Drive to the east of the TLFNA and urbanized land uses (residential development) generally occur south of Woodland Drive and east of Water Street / Lakefield Road. The main university campus is located southwest of the TLFNA separated primarily by additional natural areas and features.

The TLFNA is connected to Lock 22 Nature Area (L22NA) by an unnamed watercourse that flows through the TLFNA and downstream to L22NA and relatively contiguous natural cover between these TNAs; Lakeview Road separately these to TNAs. The TLFNA is also functionally connected to Lady Eaton Drumlin Nature Area (LEDNA) through L22NA. Collectively, these areas represent a relatively contiguous connection between natural features (woodland, wetland) and the Otonabee River. The TNAs are separated by existing infrastructure (roads) on the landscape (Lakeview Road / Water Street, Woodland Drive).

Biophysical Description

The northern portion of the TLFNA includes a southeastern slope with a narrow lowland occurring between the ridge and the parcel to the east (TAP 2D). The slope is generally comprised of wooded communities, including coniferous plantation and successional deciduous forest while the lowland area is dominated by a cedar wetland community. The lowland area appears to serve as the headwater for an unnamed tributary that becomes a permanent watercourse as it flows through a privately owned property to the west of the TNA, generally flowing along a modified alignment, before crossing east into the TLFNA and ultimately crossing Lakeview Road and flowing through Lock 22 Nature Area (L22NA) and outletting to the Otonabee River. The 2002 Stewardship Plan identifies the presence of seeps and springs on the slope within the north portion of the TNA and adjacent parcel to the west as primary sources of baseflow for the watercourse.

The central portion of the TLFNA has a gently southwesterly to southerly sloping topography that extends into TAP 2D and includes successional vegetation communities (cultural woodland and meadow) and riparian features (meadow marsh) associated with the watercourse that flows east towards Lakeview Road.

The most southerly portion of the TLFNA is mainly comprised of treed vegetation communities (old hedgerow, coniferous forest) and the topography is gently southwesterly sloping towards the intersection of Lakeview Road and Woodland Drive where a small pocket of wetland occurs. The wetland was fragmented from the wetlands to the east and south when the roads where established. It is likely that the small wetland is supported by surface water from the TLFNA and TAP and the gently sloping topography and road runoff.

The Trent University Ash Tree Survey (2015) identified a high ash density 'hot spot' in the forest communities occurring in the northeastern extent of the TNA

Significant Features and Areas

Based on work completed on adjacent TAPs it is anticipated that bats, including potential presence and use by Species at Risk (SAR) bats, use the TLFNA; use by bat species is anticipated to include foraging associated with the wetland and riparian areas along the unnamed watercourse and foraging and/or roosting in the wooded areas where suitable cavity trees are present.

A community member identified that there is potential for Butternut to occur in the TLFNA (Social Pinpoint). No other records or observations of this species were made on adjacent parcels (TAP 2C and 2D).

Confirmed Significant Wildlife Habitat includes:

- Seeps and Springs

Candidate Significant Wildlife Habitat includes:

- Bat Maternity Colonies
- Amphibian Breeding Habitat (Woodland and Wetland)
- Special Concern and Rare Wildlife Species (Monarch, Wood Thrush)

The wetland occurring in the northern portion of the TLFNA is 'unevaluated'; as such its status has not been assessed against standard protocols for evaluating wetland(s) for provincial significance.

Cultural Features

No known cultural heritage sites occur on the TLFNA.

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the TLFNA are considered a significant feature.

Current Uses

Education and Research	No educational or research sites are known to occur on the TLFNA.
Interpretation	No known interpretative signage (information, directional, etc.) occurs on the TLFNA.
Recreation	No official / sanctioned trails or recreational activities occur on the TLFNA. Ad-hoc / unsanctioned trails were noted entering the TLFNA from the adjacent TAP parcels 2D and 2C.
Adjacent Lands and Land Uses	The TLFNA is in a primarily agricultural and rural landscape context with agricultural land uses bounding the TNA to the north and west. To the east of the northern portion of the TLFNA is TAP 2D and to the west of the most southerly portion of the TNA is TAP 2C. Both TAPs are immediately adjacent to the TNA. At the time of assessment, the TAPs are comprised of culturally derived, successional vegetation communities. Commercial or light industrial land uses are located along Lakefield Drive to the east of the TLFNA and urbanized land uses (residential development) generally occur south of Woodland Drive and east of Water Street / Lakefield Road. The main university campus is located southwest of the TLFNA separated primarily by additional natural areas and features.
Indigenous Traditional Uses	No areas or specific features were identified on the TLFNA. Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources. Wetlands present on the TLFNA are identified as significant features in traditional knowledge teachings.

TNA: **Wetland Complex Nature Area (WCNA)**

General Description

Size: 14.1 ha (3.5 acres)

Updated: 2018-2019

Location: WCNA is in the northern portion of the Symons Campus, immediately east of Promise Rock Nature Area (PRNA). WCNA and PRNA are separated by the Rotary Greenway Trail (former rail line). The TNA is comprised of former agricultural lands which have naturalized over time.

Regional & Local Context

WCNA is situated in a primary agricultural landscape with larger natural areas associated with WCNA and NLNA.

WCNA is located immediately east of PRNA with the Rotary Greenway Trail acting as the border between these two TNAs. Paige wire fencing lines large portions of the Rotary Greenway Trail, acting as a semi-permeable barrier for wildlife between these two TNAs. WCNA is also located downstream of NLNA with a small intermittent watercourse or headwater drainage feature (condition unknown in some areas) originating north of NLNA and flowing through WCNA to outlet to the canal. The watercourse / drainage feature provides a functional hydrological and some ecological connection between these two TNAs. Current land cover between these three TNAs allows for movement of wildlife and plant material. Areas of the core Trent University Campus are located to the south of WCNA.

Biophysical Description

Topographically, WCNA is a long, narrow depression in a relatively flat, lowland plain. The eastern edge is bordered by upland composed of small hills and a large drumlin, the west slope of which is very steep. This slope, and the eastern slope of the Lady Eaton Drumlin, were probably once the banks of a glacial spillway channel. The soils in the WCNA belong to the Otonabee Series, having a medium texture, are moderately stony and good to excessively drained and to the Foxboro Series. These latter soils have a coarse texture, are stone free and have poor to very poor drainage (2002 Stewardship Plan).

Its low topography and poor drainage support the complex of wetland communities that define the TNA, including thicket swamp (SWT), mixed swamp (SWM) and meadow marsh (MAM). A small area of coniferous forest (FOC) extends from into the WCNA at its north end. A hydro corridor bisects the TNA near its southern end and is a primary driver for the presence of the thicket swamp in this area; active management of the area (e.g., mowing) prevents succession to a forested wetland community (e.g., SWM).

The major water source for the WCNA wetlands appears to be a steady flow of water from agricultural drainage and other inputs, from north (i.e., NLNA) and upslope of the WCNA. Water flows in a southerly direction through WCNA, supporting the wetland features present. Shallow water can remain year-round in the thicket swamp. Surface water is temporal in some parts of the treed swamps, shallow marsh and marsh meadow. Ditches running parallel to the Rail Trail drain water from the wetland into the Otonabee River (2002 Stewardship Plan).

Wildlife within the WCNA include white-tailed deer, amphibians, open habitat birds, small mammals and insects (2002 Stewardship Plan). Evidence of white-tailed deer and movement of other mammals and amphibians was noted through the area and across Pioneer Road (access to WSNA and TAP 4B) during field investigations for the TLNAP project.

A confirmed breeding pool for Blue-spotted salamander was identified in WCNA in secondary source information (SER-TU 2020). Presence of confirmed salamander breeding triggered confirmed Significant Wildlife Habitat for Amphibian Breeding.

Significant Features and Areas

Wetlands associated with WCNA have been designated as Provincially Significant as part of the Nassau Wetland Complex. Secondary source information includes multiple records of Blue-spotted Salamander including juveniles, in / near WCNA, including a breeding pool (SER-TU 2020). Secondary sources also noted records of Chimney Swift and Eastern Meadowlark (SER-TU 2020).

Confirmed Significant Wildlife Habitat:

- Amphibian Breeding Habitat (Woodland)
- Amphibian Movement Corridors

Candidate Significant Wildlife Habitat:

- Raptor Wintering (Feeding and Roosting) Areas (Bald Eagle)
- Bat Maternity Colonies
- Bald Eagle and Osprey Nesting, Foraging and Perching habitat
- Marsh Bird Breeding Habitat
- Special Concern and Rare Wildlife Species (Monarch)

The 2002 Stewardship Plan notes that the wetlands with long hydroperiods (i.e., water all year, or large portions of the year) are not common on the Trent Lands or other TNAs. As such, this area may provide significant habitat function(s) at a local scale in addition to potential for designation as SWH.

Cultural Features

No known cultural heritage sites occur on the WCNA. There is evidence of former forest management (e.g., selective logging)

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the WCNA are considered a significant feature.

Current Uses

Education and Research

The following research and teaching sites were identified within the existing WCNA boundary through engagement events.

- Environmental Geoscience – Field Methods (Teaching)

The following research and teaching are identified close to, but outside of the existing TNA boundary:

- Biology: Mammalogy (Teaching)
- Biology: Plant Ecology (Teaching)
- Biology: Amphibians & Aquatic Entomology (Research)
- Biology: Ecology & Restoration (Teaching)
- Biology: Entomology (Teaching) (2 sites)
- Education: Biology (Teaching)
- Education: Biology & Traditional Uses (Teaching)

There are numerous other teaching and research sites in the general area surrounding this TNA and the Core Campus.

The Trent University chapter of the Society for Ecological Restoration (SER-TU) has proposed a wetland restoration project for portions of WCNA. The SER-TU has consulted with Ducks Unlimited to explore potential opportunities for this TNA. The group has published a report pertaining to this project proposal (SER-TU 2020).

Comments received from members of the Trent Community and the public indicate that the area appears to be used for experiments / research and that the equipment and materials used are not removed / cleaned-up after completion of the work; it is unclear what the source of the materials is, however the 2002 Stewardship Plan noted evidence of farm and household garbage (e.g., bottles, other dumped materials) at that time.

Interpretation

No known interpretative signage (information, directional, etc.) occurs on the WCNA.

Recreation

No official / sanctioned trails or recreational activities occur on the WCNA. Interest for trails and/or signage were identified through the Social Pinpoint platform. As these areas are wetlands, it is not anticipated that trails will be recommended through the TNA.

The Rotary Greenway Trail, which defines the western limit of the TNA is a highly used trail.

Adjacent Lands and Land Uses

As noted in preceding sections, a hydro corridor bisects the TNA near its southern end, which limits the successional potential of this area.

PRNA is located to the east across the Rotary Greenway Trail, which is a heavily used trailway. To the east, the lands are active agriculture with some indication of drainage from these lands being conveyed (naturally or through field drainage) to the wetland and supporting the wetlands present in the WCNA.

Indigenous Traditional Uses

Uses across the Nature Areas include traditional knowledge teaching, gathering / harvesting medicines and plant resources.

The canal north of the WCNA and PRNA are identified as habitat and movement corridor for fish, turtles and waterfowl.

TNA: **Wildlife Sanctuary Nature Area (WSNA)**

General Description

Size: 151.7 ha (375 acres)

Updated: 2018-2019

Location: WSNA occupies a large area in the southeast portion of the Trent Lands and is bounded by Pioneer Road in the north, Douro 9th Line to the east and University Road to the west. The southern limit of WSNA is not defined by a road, but is coincident with clear agricultural property limits, generally following hedgerows along the property limits.

Regional & Local Context

The WSNA is in a primarily agricultural and natural landscape context with agricultural land uses bounding the TNA to the north, east and south. The Canal Nature Area (CNA) is located immediately to the west of WSNA with University Road acting as the divider between these two areas.

WSNA is functionally connected to CNA. Pioneer Road poses some limitations to movement with high traffic volumes during peak hours, however the road is narrow with a relatively narrow break on the forest canopy, and animals will move between these two TNAs. Within the broader landscape, WSNA topography of the surrounding areas results in a partially linear system of agricultural areas with intervening natural feature (forest, wetland). Within the local landscape there is anticipated to be a high degree or movement and permeability for the using the area.

Biophysical Description

WSNA is comprised predominantly of upland woodlands (e.g., FOM, FOC, FOD, CUW), wooded wet-lands (e.g., SWD, SWM, SWC) and agricultural areas. Areas of non-treed wetlands (e.g., MAM), meadow (CUM) and shrub habitat (e.g., CUT, CUS) also occur in smaller proportion.

WSNA is characterized by rolling terrain typical of the Peterborough Drumlin Field. The topography consists of four NE to SW parallel wetlands, separated by indistinct drumlins, the highest of which rises ~17m above the lowest topographic points. Glacial erratics occur in some parts of the WSNA. Drainage ranges from well to excessively drained to poorly drained (2002 Stewardship Plan).

The WSNA has three relatively large, separate wetlands. The northern-most wetland receives intermit-tent inflow from several drainage sources north of Pioneer Road, including the Archaeological Centre Wetland Nature Area (ACWNA), the Otonabee College Wetland Nature Area (OCWNA), and a stream which flows through agricultural fields. Intermittent inflow also comes from a wetland adjacent to the Canal Nature Area (CNA) to the southwest. Outflow is via an intermittent stream draining west through the CNA and then into the canal (2002 Stewardship Plan).

A central, seasonally flooded wetland is situated in a broad, flat lowland. Seasonal inflow into the eastern part of the WSNA comes through culverts under Nassau Road that drain the upper reaches of this wet-land. There are several small semi-permanent pools in the wetlands (2002 Stewardship Plan).

The southern-most wetland is similar to the central wetland. Hydrologic inputs are smaller for this wet-land than the central wetland. Water drains from the southern and central wetlands into a large wetland on neighbouring land to the southwest. These wetlands are the headwaters for Curtis Creek (2002 Stewardship Plan).

WSNA provides a range of habitat types and as such, supports a similarly large range of species. White-tailed deer are known to frequent the TNA, with use often focused around its eastern side. Habitats are suitable to support a range of habitat functions for deer as well as smaller mammals, such as rac-coons, grey squirrels, red fox, eastern cottontail rabbits and weasels (2002 Stewardship Plan). Where pools and standing water occur, habitat for aquatic invertebrates, amphibians and turtles is expected to occur.

Bird species recorded within the WSNA (per the 2002 Stewardship Plan) include: Great Horned Owl, Red-tailed Hawk, American Woodcock, Warbling Vireo, Red-eyed Vireo, Ruffed Grouse, Hermit Thrush, warblers, etc. Bobolink have been recorded in the WSNA associated with open areas and fields. Other open-habitat birds include: American Goldfinch, Savannah Sparrow, Baltimore Oriole, Northern Cardinal, and Rose-breasted Grosbeak (2002 Stewardship Plan).

The Trent University Ash Tree Survey (2015) identified a high ash density 'hot spot' in forested commu-nities occurring in the west and southwestern extent of the TNA.

Significant Features and Areas

Wetland in the north-western half of the WSNA are part of the Nassau Mills Provincially Significant Wetland Complex. Wetlands in the southeast half of the TNA are 'unevaluated'; as such their status has not been assessed against standard protocols for evaluating wetland(s) for provincial significance. The wetlands within the WSNA form a prominent set of features on the landscape that connect to areas beyond the TNA. It is noted that the wetlands are the headwaters for Curtis Creek (2002 Stewardship Plan).

Based on work completed on adjacent TAPs it is anticipated that bats, including potential presence and use by Species at Risk (SAR) bats, use the WSNA. Use by bat species is anticipated to include foraging associated with the wetland, meadow and shrub habitat areas and roosting in the wooded areas where suitable cavity trees are present. Record of Bobolink was also noted in the 2002 Stewardship Plan. Bobolink is listed as Threatened under the Ontario Endangered Species Act (2007).

Through ITK knowledge sharing, occurrence of Blanding's Turtle within the WSNA was identified. This species is listed as Threatened under the Endangered Species Act (2007) and is receives individual and habitat protection under the Act. This species uses a range of wetland habitat types and is known to move substantial distances across terrestrial areas to access habitats.

Candidate Significant Wildlife Habitat:

- Raptor Wintering (Feeding and Roosting) Areas
- Bat Maternity Colonies
- Colonial Bird Nesting Habitat
    - Tree/shrub
- Waterfowl Nesting Area
- Bald Eagle and Osprey Nesting, Foraging and Perching habitat
- Woodland Raptor Nesting Habitat
- Seeps and Springs
- Amphibian Breeding Habitat (Woodland and Wetland)
- Woodland Area Sensitive Bird Breeding Habitat
- Marsh Bird Breeding Habitat
- Shrub/Early Successional Breeding Bird Habitat
- Special Concern and Rare Wildlife Species
- Amphibian Movement Corridors

Cultural Features

No known cultural heritage sites occur in the WSNA. However, land use history in the WSNA has defined many of the vegetation communities and the landscape in the TNA. Evidence of past use and occupation is still evident as abandoned agricultural materials and equipment, building remnants, old fence lines, etc.

Indigenous Traditional Knowledge

Wetlands are culturally important in traditional knowledge; they offer food, materials and offer a significant and diverse range of medicinal plants. Wetlands are a significant source of medicines; First Nations people would collect plants that occur in the wetlands naturally as well as move and encourage medicines to grow in / around the wetlands to provide ready access to these resources. Wetlands are also recognized as an area of importance for ecological functions: water cycling, balance and life cycles of plants, animals, etc. Wetlands present on the WSNA are considered a significant feature.

WSNA is well used for traditional uses and teaching and is a significant site for this purpose. The TNA offers excellent opportunities for members of the Indigenous community to share knowledge both with other members of their community, and with students, etc. Identified uses and knowledge shared for WSNA includes medicinal, food, and fiber gathering for a range of plants that occur within the WSNA; wildlife habitat area (movement, bedding, foraging of deer); turtle habitat; sensitive habitat areas for wildlife (e.g., known or potential areas for species of conservation concern or Species at Risk). as Additionally, the presence of Blanding's Turtle, designated as *Threatened* under the Ontario Endangered Species Act (ESA 2007), has been identified in the northwest of the TNA, near to the Otonabee River, through various sightings between 2012 and 2015, including two nesting sites.

Current Uses

Education and Research

The 2002 Stewardship Plan identified WSNA as one of the most used areas for research and teaching. The area provides easy access through a network of formal and informal trails and contains a broad range of habitats at various states of naturalization. Education and research topic areas which utilize the resources in the WSNA include: biology, geography, environmental sciences, Indigenous studies, hydrology, soil studies, vegetation succession, forest ecology, small mammal and recreation studies.

Non-university organizations (e.g., college, junior, intermediate and senior school classes) have used the WSNA for teaching.

The following research and teaching sites were identified within the existing WCNA boundary through engagement events.

- Environment and Resource Science: Environmental History (Teaching) (4 sites)
- Environment and Resource Science: Environmental Education (Teaching)
- Indigenous Studies / Education: Indigenous Knowledge on the Land (Teaching)
- Biology: Ornithology (Research)

Interpretation

No known interpretative signage (informational) occurs on the WSNA. The status of interpretation signage at the trailhead is not known. A trailhead with access from University Road provides a primary access point for the trails in WSNA.

Recreation

The WSNA is the largest and most extensively visited Nature Area on the Symons Campus, being used for teaching and outdoor recreation by the University community and the public. The 2002 Stewardship Plan estimated that there are between 10,000 to 20,000 person visits per year; with increases to the student population and growth in Peterborough, it is expected that this number is larger today. The WSNA is primarily used for walking, dog walking (on- and off-leash), jogging, cross-country skiing, snow shoeing, and nature walks. In addition, it is used for undergraduate teaching and some local school classes visit for recreation and nature interpretation.

Non-university organizations (e.g., college, junior, intermediate and senior school classes) have used the WSNA for outdoor recreational purposes. Orienteering clubs, and survival courses, have also used the WSNA.

Adjacent Lands and Land Uses

Land surrounding the WSNA are similar in their topography and land cover to those within the WSNA. They are primarily agricultural with intervening natural areas and are defined largely by topography and hydrology. Lands to the north are part of the Clean Tech Commons and are anticipated to undergo land use change from agricultural to research / institutional over time. Lands to the east and south are rural and are anticipated to remain in that condition in the near term.

Indigenous Traditional Uses

As noted in the preceding sections, the WSNA is heavily used for traditional teaching, harvesting (e.g., medicinal plants, foods and materials). WSNA provides habitat for wildlife with both cultural and traditional use values.

A sweat lodge was constructed on the WSNA (late 1990s). WSNA continues to be well-used by the Indigenous communities around Trent and for Indigenous students attending Trent University. Proximity to the Traditional Area (Tipi, Wigwam) encourage ongoing use and knowledge sharing with the broader Trent community.