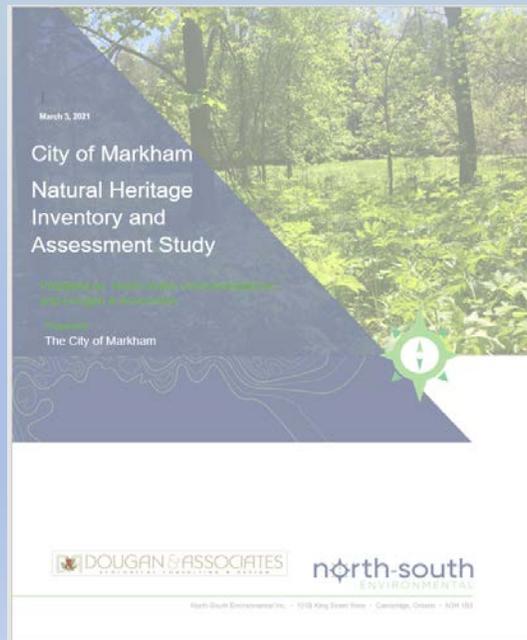




# Markham Phase 1 Natural Heritage Inventory and Assessment Study



Presentation to Development Services  
Committee

May 3, 2021

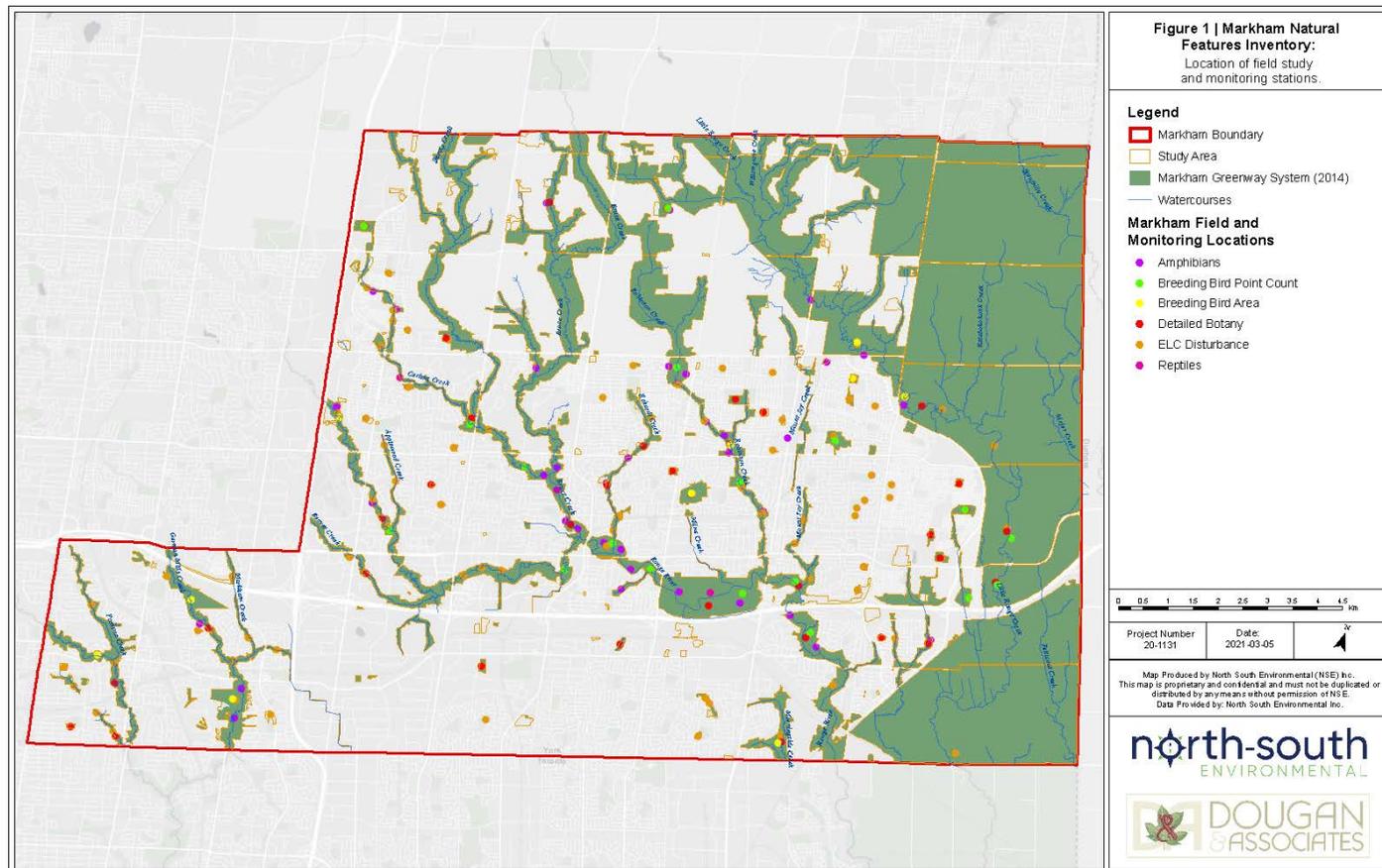
# Presentation Format

- Results from 2020 fieldwork
  - Natural cover
  - Flora & fauna inventory and significance
- Key Recommendations

# Study Objectives

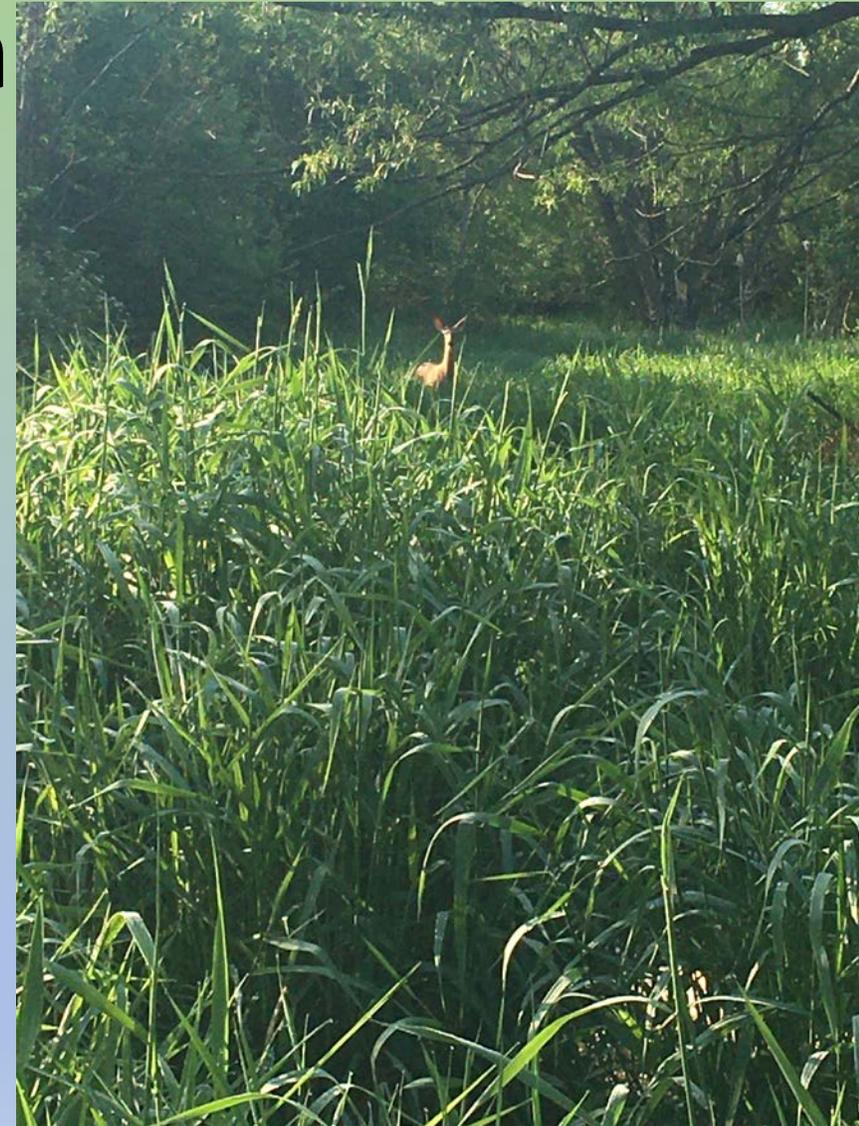
- Updating information on vegetation and wildlife and comparing with 1991 Natural Features Study Inventory
- Providing a more complete and accurate understanding of the limits and extent of natural heritage features (including flora and fauna)
- Providing analysis on the health and condition of the Greenway System
- Providing guidance for the Phase 2 Natural Heritage Study Management Plan

# Field Study and Monitoring Locations

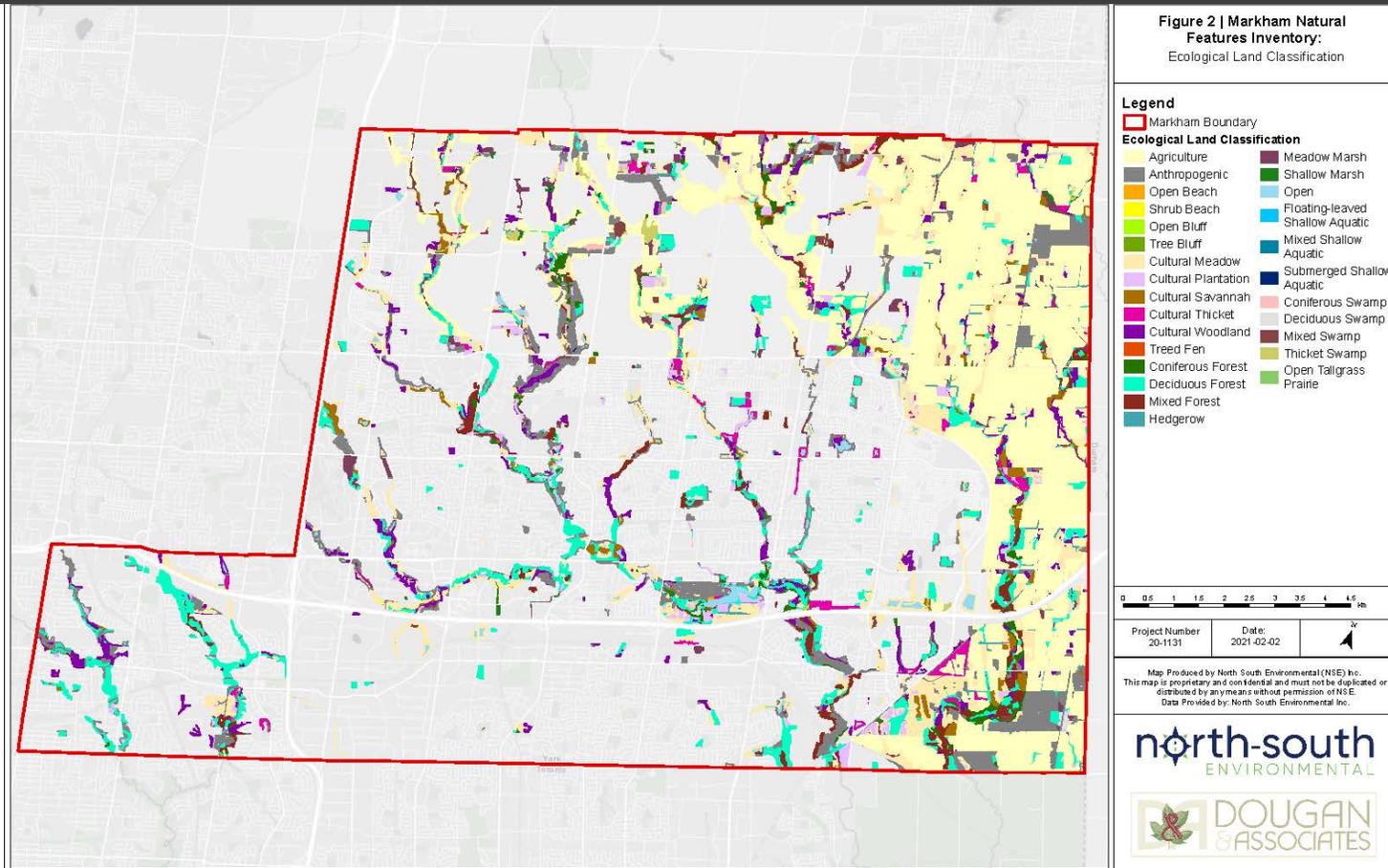


# Field Work Findings: Vegetation

- Upland forest dominated by Sugar Maple the most prevalent type; oak present but not dominant; Eastern Hemlock, Eastern White Cedar and Black Walnut also fairly common
- Non-native trees common components of lowland forest
- White Ash and Green Ash still present in forests and swamps, near death because of Emerald Ash Borer, but large blowdowns not apparent
- Meadow marshes dominated by Reed Canary-grass and shallow marshes dominated by non-native and native cattails.
- Very similar to vegetation types reported in 1991



# Greenway-wide Vegetation Mapping



- Wetland vegetation: 11.2% of the vegetation mapped (3.7% of Markham)
  - predominantly meadow marsh
- Terrestrial vegetation: 89% of the vegetation mapped (~30% of Markham)
  - 45% agricultural (15% of Markham)
  - 76% cultural (e.g. meadows, thickets, young woods, plantations) (25% of Markham)
  - 13% forest (4.4% of Markham)



# Significant Flora

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- Provincially significant flora species
  - Butternut (Endangered)
    - all heavily cankered but many with live canopy
  - Three prairie species planted
  - Black Ash still present
    - now of concern because of Emerald Ash Borer
- 43 regionally and locally significant species
- 73 total significant species (including TRCA-ranked species)

# Wildlife

- 7 amphibian species, low abundance at most stations
- 4 reptile species: 3 turtles and Eastern Gartersnake
  - 2 turtle SAR: Snapping Turtle and Midland Painted Turtle
- 77 bird species, breeding evidence for 75 (Similar to 1992)
  - 6 bird SAR: Canada Warbler, Common Nighthawk, Eastern Wood-pewee, Barn Swallow, Wood Thrush and Eastern Meadowlark.
- Incidental Surveys:
  - 12 mammals
  - 5 insects (SAR species Monarch)

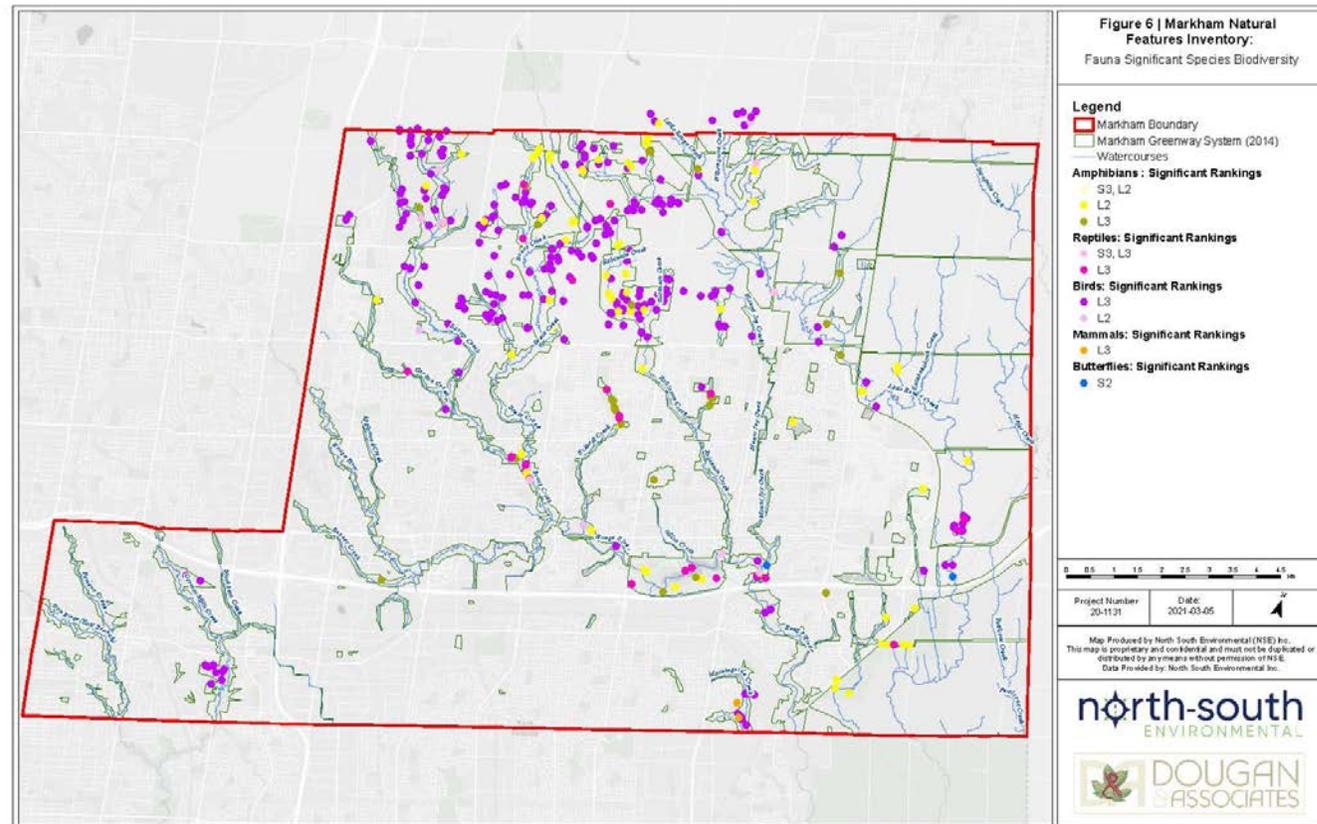


# Species of Conservation Concern

- 23 TRCA L1 to L3 (locally rare) Species
- 16 Area-sensitive species
  - 15 bird species and Bullfrog

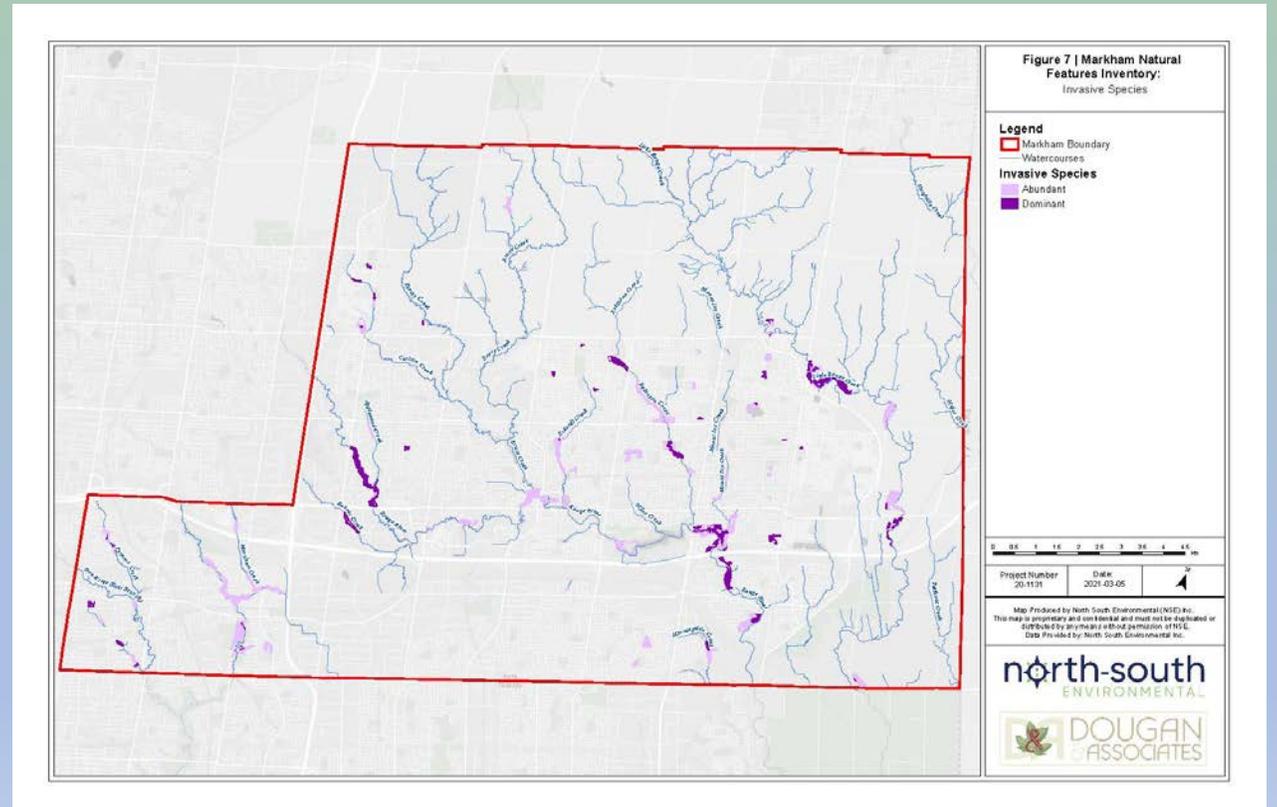


# Fauna Significant Species Biodiversity



# Ecological Condition

- Disturbances now mainly related to the presence of people: trails, encroachment, dumping, party spots, and vegetation removal or trampling
- Hazard tree removal in some areas, especially along trails in well-used parks.
- Non-native invasive species are more prevalent, BUT some of the most invasive species in the GTA are not as prevalent



# Comparison of 1991 and 2020 Plant Biodiversity

- 506 species noted in 1991 study (current study noted 478)
- Percent of native species in 1991 was 72%, whereas percent native species in 2020 was 67% (may not be significant)
- 25 species listed as rare in York Region in 1991, 43 rare species noted in 2020 (list of Regionally rare species was revised in 2000 and several times since then)
- Locally Significant Areas (LSAs) were hotspots highlighted in 1991; appear to be similar as described in 1991, though there are comments in wetland evaluations that some wetlands have been degraded by stormwater inputs. 96.5% of Locally Significant Areas are encompassed by the Greenway. Largest areas outside of the Greenway are those on Little Rouge and Rouge River within the Hwy 407 corridor.



**Bird Diversity:** similar species numbers and types, with slight decline in forest birds near wetlands since 1991, increase in forest interior and late-successional species



# Amphibian Diversity

- All species reported in 1991 were noted in 2020, though only one observation of Gray Treefrog was recorded in 2020 (location was uncertain)
- Spring Peeper and Red-backed Salamander recorded in 2020 but not in 1991
- No observations of high abundance of woodland amphibians (i.e. none high enough or diverse enough to indicate Significant Wildlife Habitat)

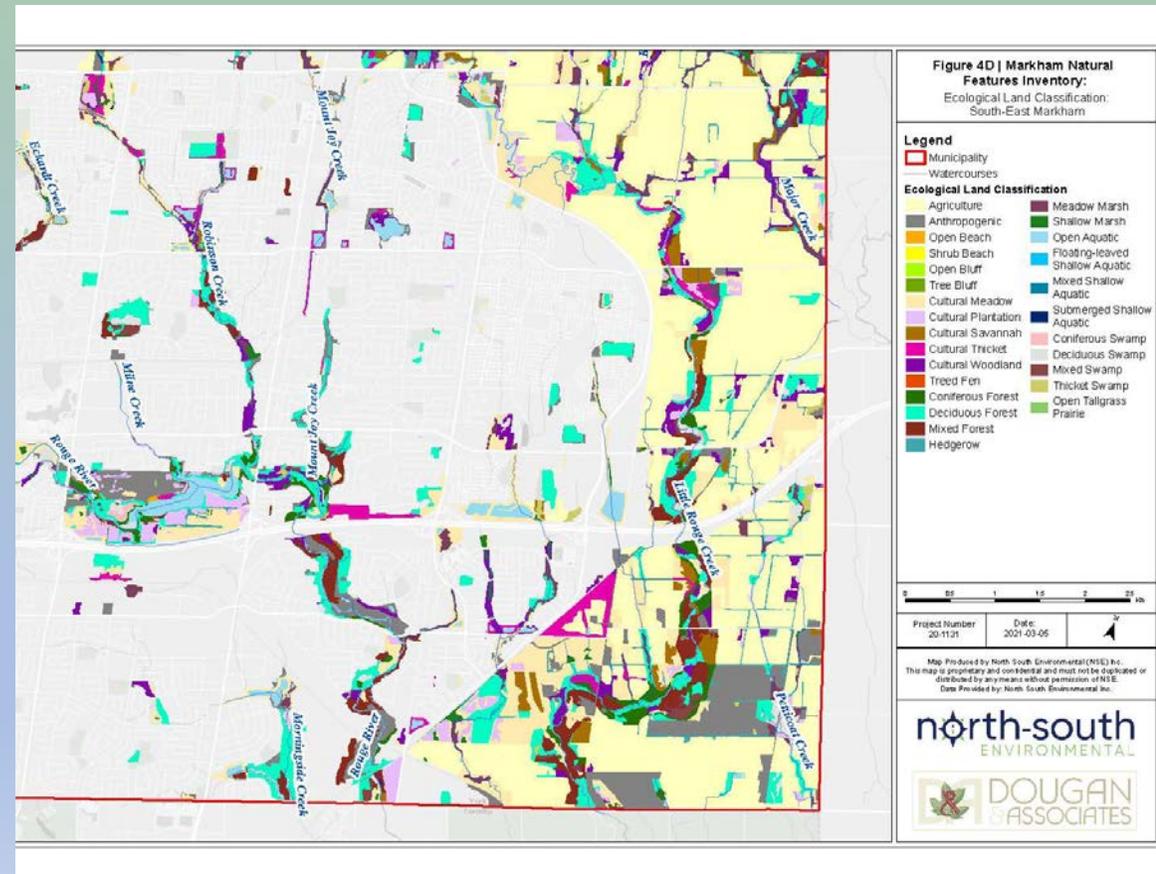


# The Greenway System Components

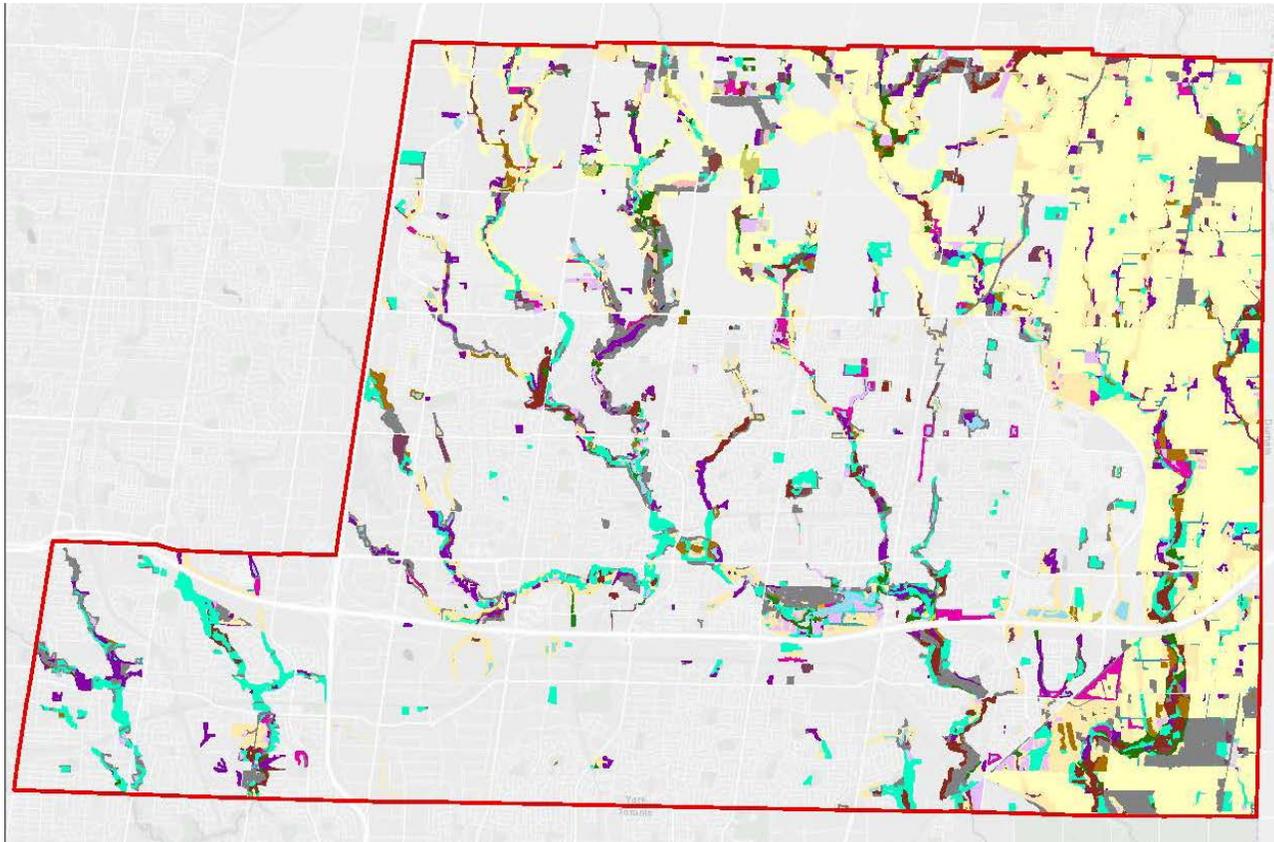
- Key Natural Heritage Features and Key Hydrologic Features are protected. Of the vegetation mapped in this study, the Greenway System includes:
  - 95% of wetlands (98% of Provincially Significant Wetlands)
  - 97% of woodlands
  - 93% of cultural communities (with the caveat that there are likely other areas of cultural vegetation that occur in areas outside the Greenway that were not mapped)
  - Biodiversity hotspots reported in 1991 as well as 2020 are encompassed by the Greenway
  - Most of the habitat is linked by corridors a minimum of 50 m wide (41 patches not connected; 1.5% of the Greenway); 62% of patches linked by corridors 100 m wide.
  - East-west connections are limited but some occur in central Markham

# Areas of Ecological Importance

- Rouge River and Little Rouge River; successional areas in Greenbelt on the eastern part of Markham provide high contribution to diversity; habitat nodes larger and more diverse on these systems;
- Morningside Creek is unusual as it is an area surrounded by urban development with high quality and species diversity;
- Wetlands, especially PSWs, harbour high diversity in relation to their size;



# Key Recommendations: Updated Natural Heritage Inventory



- Updated Natural Heritage Inventory should be considered in the next Official Plan review to ensure the most up to date boundaries for natural heritage and hydrological features are reflected in the Official Plan
- Review options for establishing natural heritage targets in next Official Plan review
- Review opportunities to link isolated natural heritage patches wherever possible and continue to implement the major east-west linkage
- Review opportunities to protect or include in the Greenway System successional areas where feasible
- Continue to identify, monitor and manage areas of high biological diversity
- Continue natural heritage restoration and enhancement initiatives

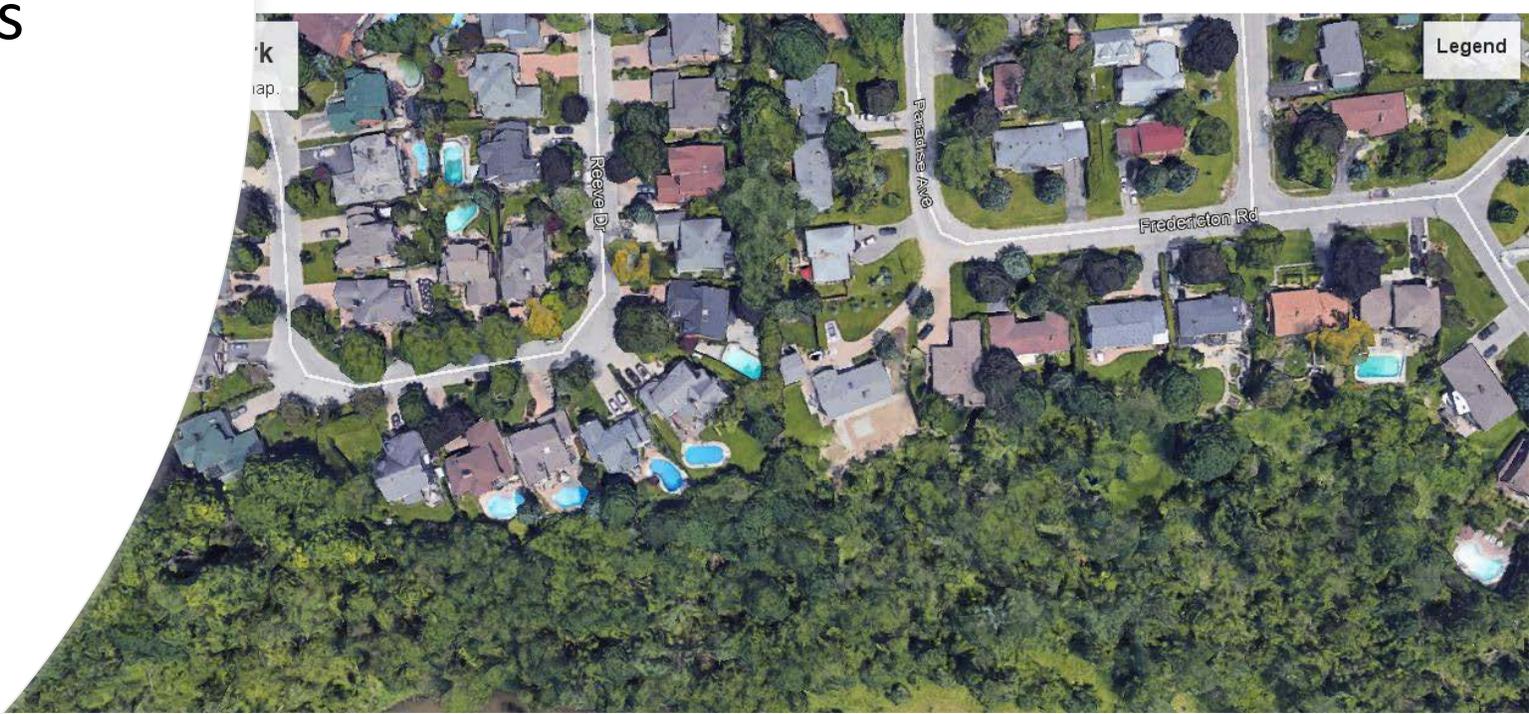
# Key Recommendations: Invasive Species



- Prepare a non-native Invasive Species Management Plan for Markham;
- Monitor for and manage species that are highly invasive in the GTA but have not become pervasive in Markham: Norway Maple, Black Alder, European Birch and Glossy Buckthorn;
- Prioritize management of highly invasive species in high-quality areas and areas of high diversity.

# Key Recommendations: Edge Management and Encroachment

- Prepare an Edge Management and Encroachment Plan to address existing impact areas and potential future impacts adjacent to the Greenway System



# Key Recommendations: Monitoring and Wildlife Crossings

- Prepare a long-term monitoring program
- Monitor and address wildlife road crossing conflicts as opportunities arise