Carruthers Creek Watershed Plan (CCWP): Terrestrial Impact Assessment Overview

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Presentation Outline

1. Goal and Objectives for the Terrestrial System
2. Terrestrial Impact Assessment
3. Preliminary Recommendations
4. Next steps

Goal and Objectives for the Terrestrial System

Goal: To protect and enhance terrestrial habitat and biodiversity

Objectives:

1. Protect and increase **natural cover quantity** for terrestrial habitat and functions
2. Protect and enhance **natural cover quality** for terrestrial habitat and functions
3. Protect and restore **terrestrial biodiversity** including species and communities
4. Adapt and manage for the **climate vulnerabilities** of the terrestrial system (Proposed)

Terrestrial Impact Assessment (TIA)

- Purpose:
  To understand potential implications of different land use scenarios on the objectives for the terrestrial system
- This will inform the ongoing update to the CCWP objectives, targets, and recommendations
- This helps to identify strategic actions that will assist Durham Region in its objective to achieve greater sustainability and resiliency

Indicators and Measures used in the TIA

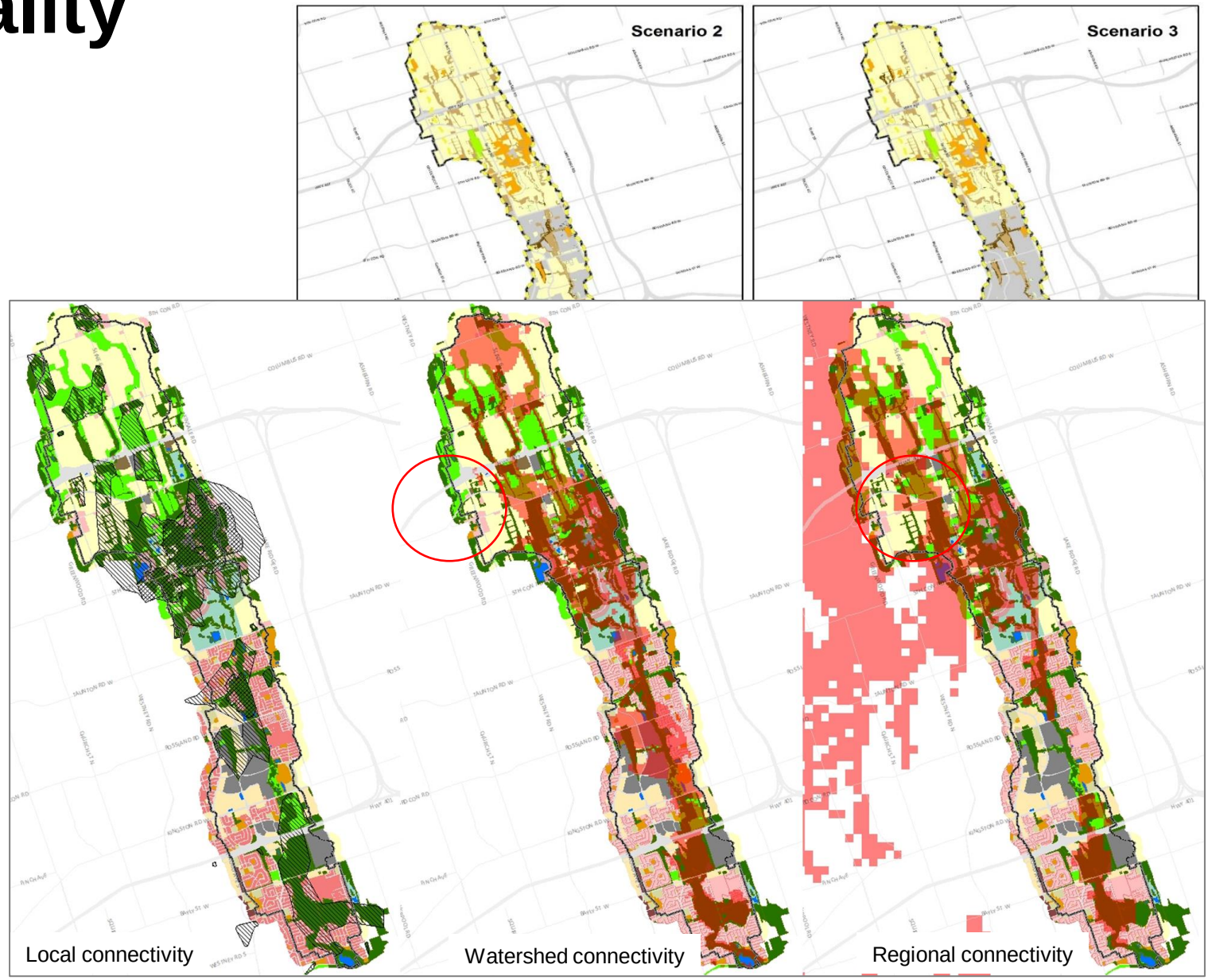
Objective	Indicators	Measures	
Natural Cover Quantity	• Natural Cover Area	Total Natural Cover Forest Wetland Meadow	
Natural Cover Quality	• Habitat Patch Quality • Habitat Connectivity	Patch Size Patch Shape Matrix Influence Patch Quality (LAM) Quality L-rank	Regional Habitat Connectivity Watershed Habitat Connectivity Local Habitat Connectivity
Terrestrial Biodiversity	• Vegetation Communities • Fauna Species	L1-L3 Veg. Communities Number L1-L3 Veg. Communities Area	Total Species Number L1-L3 Species Number Abundance of individuals
Climate Vulnerabilities	• Climate change vulnerable feature and areas	Habitat Patch Quality Wetland Type Climate Sensitive Vegetation Ground Surface Temperature Soil Drainage	

Natural Cover Quantity

- Substantial increase in natural cover under +NHS scenario
  (e.g. 23% to 36% total natural cover)
- Mostly in the north and forest habitat
- Gains in the quantity can be compromised under +Pot. Urban scenario
- Changes in surrounding landscape has impact on features and functions
  (e.g. wetland catchments analysis, warbler swamp)

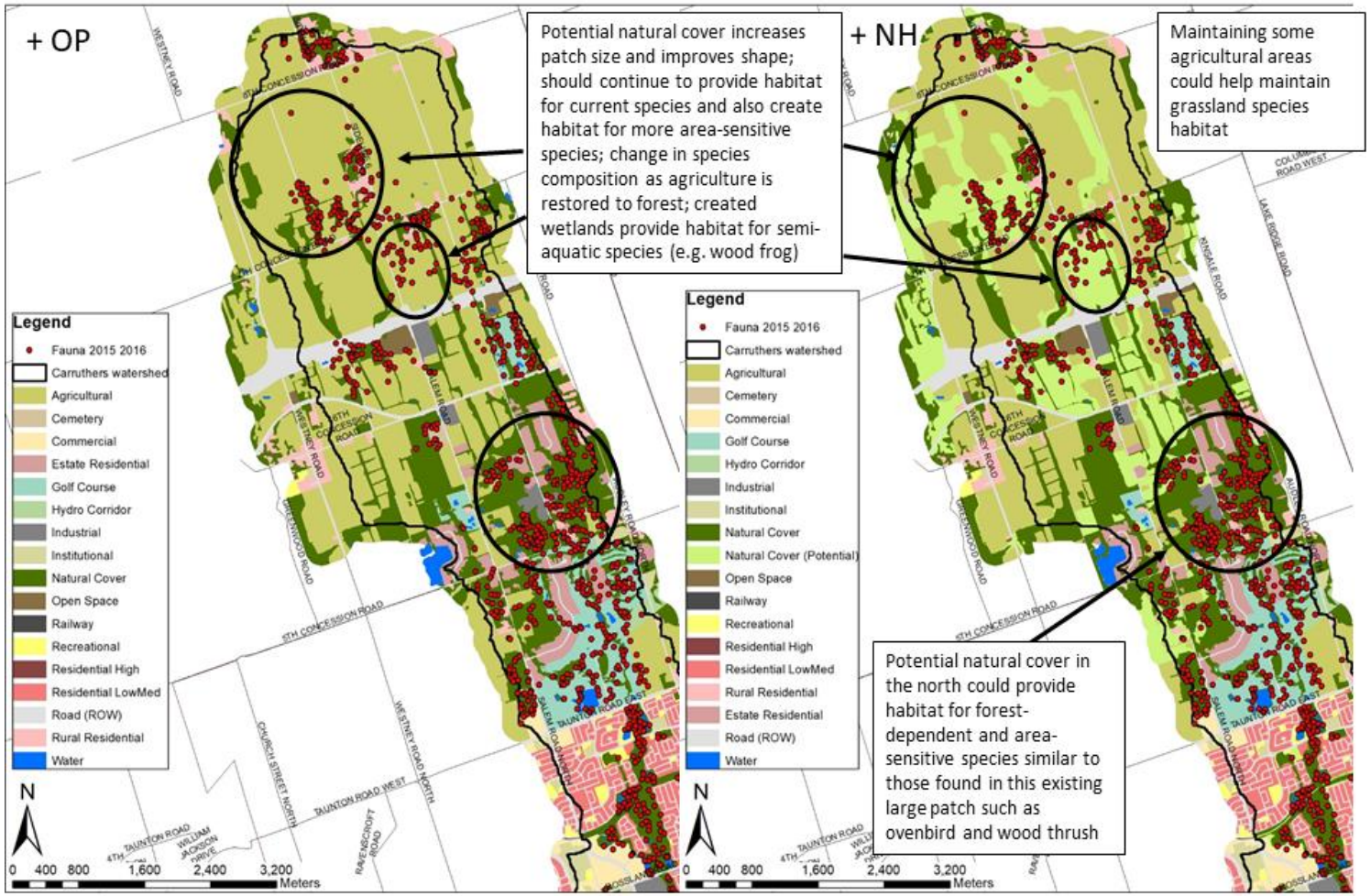
Natural Cover Quality

- Increase in patch quality with +NHS scenario
- Mostly in the north due to increase in patch size and shape
- Increased matrix influence and edge effects under +Pot. Urban scenario that may compromise patch quality
- Increased protection of habitat connectivity priorities under +NHS scenario that may increase patch quality
  (e.g. 18% more protection for regional connectivity)



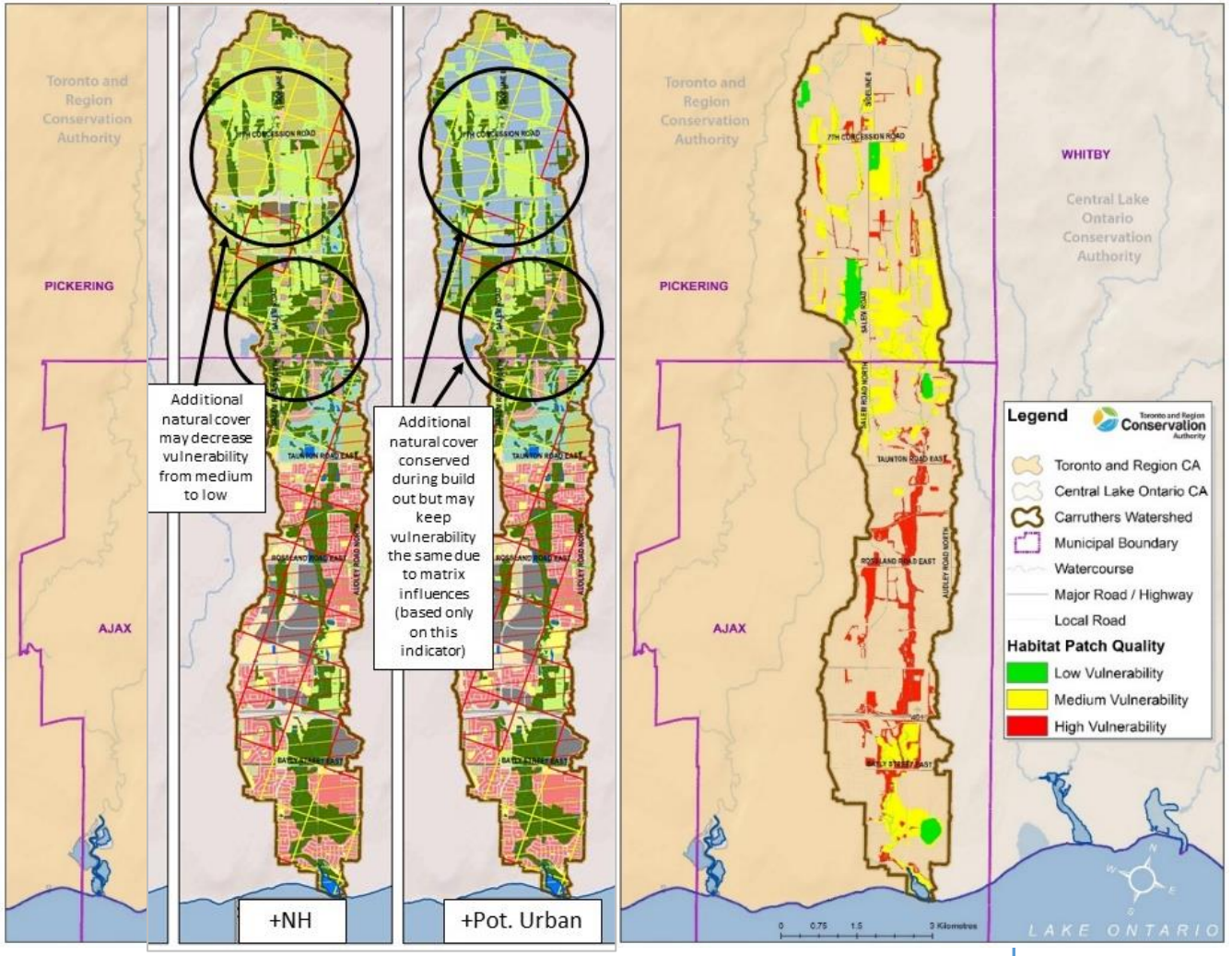
Terrestrial Biodiversity

- +NHS scenario provides robust habitat to sensitive species and vegetation
- +Pot. Urban scenario may compromise sensitive species due to habitat loss, edge impacts & other matrix influence
  (e.g. agriculture habitat, warbler swamp example)
- Open space to built land use conversion may impact at least six species
  (e.g. bobolink, common raven, horned lark, willow flycatcher, savannah sparrow, northern flicker, eastern kingbird and gray catbird)



Climate Vulnerabilities

- High vulnerability areas are protected more under +NHS scenario – increased resilience
  (e.g. 8% more protection of highly vulnerable areas)
- Land use change under +Pot. Urban scenario may exacerbate the climate change impacts
  (e.g. increased edge effects and negative matrix influence)
- High vulnerability outside natural areas in urban matrix will continue to exacerbate impacts under all scenarios – likely increase under +Pot. Urban scenario
  (e.g. ground surface temperature)



Preliminary Recommendations

- Protect existing natural cover and implement NHS targets
- Restore and manage to increase quantity and quality of natural cover patches
- Manage surrounding landscape to minimize negative matrix influence
  (e.g. green infrastructure implementation)
- Enhance habitat connectivity at regional and local scales
  (e.g. restoration, crossings structures)
- Focus on habitat conservation along with sensitive species and vegetation requirements
- Incorporate climate vulnerabilities of existing system into conservation planning
  (e.g. climate resilient communities, increased connectivity for adaptation)

Next Steps

- Complete peer review process – internal and external
- Complete revisions
- Finalize the draft Terrestrial Impact Assessment report
- Revisit targets for terrestrial system for the CCWP
- Integrate the findings with other components of the CCWP

Thank you

Toronto and Region Conservation Authority